

D2.3 – Final recommendations to transform
the public sector processes and services

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**Empowering Citizens to Transform
European Public Administrations**

Deliverable D2.3

**Final recommendations to transform the public sector
processes and services**

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Abstract:	This document will present the final version of the recommendations and best practices to help the policy makers to adjust the public process in order to facilitate the cooperation between all CITADEL stakeholders
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Terms and abbreviations

X	Chi-value
ADMS	Asset Description Metadata Schema
API	Application Programming Interface
Art	Article
AT	Austria
CDO	Chief Data Officer
CITADEL	Empowering Citizens to TrAnsform Public Administrations
CPSV-AP	Core Public Service Vocabulary Application Profile
CSP	Cloud Service Provider
d.f.	Degrees of freedom
Digmat	Digital Maturity Model
DPIA	Data Protection Impact Assessment
DPO	Data Protection Officer
DSM	Digital Single Market
EC	European Commission
EEA	European Economic Area
eID	Electronic identifier
eIDAS	Electronic IDentification Authentication and trust Services
EIF	European Interoperability Framework
EIRA	European Interoperability Reference Architecture
EL	Greece
EQI	European Quality of Government Index
ES	Spain
EU	European Union
EWCS	European Working Condition Surveys
FR	France
GDPR	General Data Protection Regulation
Glmer	Generalized Linear Mixed-Effects Models
H2020	Horizon 2020
ICC	Intraclass Correlation Coefficient
ICT	Information and Communication Technology
ISA²	Interoperability solutions for public administrations, businesses and citizens
ISSP	International Social Survey Programme
IT	Italy
KR	Key Result
Lme4	Linear Mixed-Effects Models using 'Eigen' and S4
LU	Luxembourg
MPA	Master in Public Administration
N	Polulation
n	Sample
NIMBY	Not-In-My-Back-Yard
NUTS	<i>Nomenclature des Unités Territoriales Statistiques</i>
OAIS	Open Archival Information System
OECD	Organization for Economic Cooperation and Development
PA	Public Administration
PA	Public Administration

PAR	Public Administration Review
PolInt	Interest in politics
PRISMA	Preferred Reporting Items for Systematic review and Meta-Analysis
PSM	Public Service Motivation
QOG	Quality of Government
ROPA	Record Of Processing Activities
ToC	Table of Content
UK	United Kingdom
UN	United Nations
US	United States
W3C	World Wide Web Consortium
WAI	Web Accessibility
WP	Work Package

Executive Summary

In the first section of the report, we discuss the article *Institutional quality, corruption, and impartiality: The role of process and outcome for citizen trust in public administration in 173 European regions* by Steven Van de Walle and Koen Migchelbrink. In this paper, we empirically study whether citizens' trust in their public administration is influenced by the outcomes delivered by public services or by due process (administrative impartiality or absence of corruption). The paper fits a multilevel model on a unique dataset with a total of 129,773 observations nested in 173 European regions, using data from a series of pooled Eurobarometer surveys and from the European Quality of Government Index. We find that both public service outcomes and processes have a significant impact on citizens' trust in public administration, but that process, and in particular absence of corruption is the strongest institutional determinant.

In the second section, we discuss the draft academic paper *Attitude and responsiveness of civil servants in involving other stakeholders in participatory policy-making* by Koen Migchelbrink and Steven Van de Walle. Public officials' attitudes toward public participation are a central determinant of the success of engagement practices. Authentic and genuine participation requires responsive public officials, willing to engage with the public. However, the existing evidence on the determinants of such attitudes is scattered over case studies, survey research, (quasi)experiments, and discussions in multiple academic fields. In this structured review [1], [2] we aim to bring together evidence from Public Administration, Political Science, and Urban Studies research on the main determinants of public officials' attitudes toward public participation in public administration. For practitioners and scholars alike, this research provides evidence-based insights into how to improve the success of public participation endeavors.

In the third section of this report, we discuss the updated, appended and extended content of the Digital Maturity Model (Digimat) already provided in D2.1 and D2.2. Since this is the last version of this set of deliverables and in order to make it a self-contained section, several parts of the content presented in the aforementioned deliverables have been included in this document.

1 Introduction

1.1 About this deliverable

In this document, we present the final version of the recommendations and best practices to help the policy makers to adjust the public processes in order to facilitate the cooperation between all CITADEL stakeholders [3], as well as two major pieces of research on which these recommendations and best practices are based. In general, the objective of WP2 is to collect the available information coming from citizens and other stakeholders in order to analyse and understand which are the required transformations needed to be carried out in the policies and processes of the public administrations so as to deliver services with higher added-value, more effectively, and with more efficiency [3]. In this document, one of the work package's final ones, we bring these objectives together.

First, this document focusses on citizens relationship with public sector processes. We analyse data of n = 104,621 EU citizens in n = 173 EU subnational regions in order to find out more about why citizens are, or are not, satisfied with their governments. Citizens' satisfaction and trust in government is an important indicator of the performance and legitimacy of a political system. The results show that while both process and outcome of public services have a significant effect on citizen trust, the effect of the quality of processes is larger than that of outcomes. These findings feed in to the ecosystem recommendations to transform the public processes [KR1], and the requirements of the CITADEL assessment service [KR6] presented in section three of this deliverable.

Second, we examine the attitudes of public official and toward the participation of citizens in the public sector processes. One of the objectives of the CITADEL project is to come-up with ways in which citizens can become empowered to transform public sector processes. However, research has established that as long as officials' are unwilling to engage with citizens, these empowerment processes are likely to remain without consequence [4]–[8]. Therefore, recommendations that help policy makers adjust public processes in order to facilitate cooperation between all stakeholders should take officials' attitudes into account as well. We examine these attitudes through a systematic literature review of 91 (systematically) selected articles. Findings show that officials' hold an instrumental view on citizens' involvement in public sector processes and that they assess the pros and cons of each participation process individually. As such, assessments of citizens' competences, of process tailoring, and of the input legitimacy of processes are especially relevant. The findings of this systematic literature review feed into the ecosystem recommendations to transform the public processes [KR1], and the requirements of the CITADEL assessment service [KR6] presented in section three of this deliverable. Furthermore, these findings support the examination of input legitimacy in the vignette-experiments earlier on in this work package.

The research in sections 1 and 2 of this report, the initial recommendations and pieces of research in D2.2, D2.1, and WD2.1, all feed into the final version of the digital government maturity assessment model in section three of this deliverable, as well as into the CITADEL ecosystem recommendations to transform public processes [KR6], and the requirements of the CITADEL assessment service [KR6]. The objective of the digital government maturity assessment model is to evaluate and assess the digital maturity of a public administration with the aim of improving its digital government processes. Initially, the scope of the maturity model was the coverage of digital aspects of the government and delivery of digital public services. However, and after the considerations of the EC reviewers, the scope of the maturity model has been increased in order to incorporate other aspects such as the analysis of the willingness of civil servants to participate and co-create with citizens, social factors of non-use of digital public services, user centricity, smart working, and so on.

The end result of the maturity assessment is a maturity level accompanied by set of recommendations that are based on existing reports coming from international institutions (e.g. European Commission, UN, OECD), literature and European regulations, recommendations and initiatives. This digital maturity model is implemented as an ICT enabler named DIGIMAT in the context of WP4.

1.2 Document structure

The deliverable consists of three sections. In the first section we discuss the paper *Institutional quality, corruption, and impartiality: The role of process and outcome for citizen trust in public administration in 173 European regions*. In the second section we discuss the paper *Attitude and responsiveness of civil servants in involving other stakeholders in participatory policy-making*. In the final section, we discuss the amended and updated final version of the digital government maturity assessment model: *Supporting and preparing the holistic transformation of the public administrations based on their maturity*.

2 Institutional quality, corruption, and impartiality: The role of process and outcome for citizen trust in public administration in 173 European regions

We empirically study whether citizens' trust in their public administration is influenced by the outcomes delivered by public services or by due process (administrative impartiality or absence of corruption). The paper fits a multilevel model on a unique dataset with a total of 129,773 observations nested in 173 European regions, using data from a series of pooled Eurobarometer surveys and from the European Quality of Government Index. We find that both public service outcomes and processes have a significant impact on citizens' trust in public administration, but that process, and in particular absence of corruption is the strongest institutional determinant.

2.1 A Multi-level analysis at regional level in EU28

Citizens' trust in their public administration is an important indicator for evaluating government bureaucracies. Whether or not such subjective assessments reflect the quality and performance of public administration, they drive behaviours of citizens towards the administration [9]. Trust in public administration, or confidence in civil servants, is part of what Norris [10] has called confidence in the core public institutions. Trust is essential for the legitimacy of institutions [11] and steers the behaviour of citizens [12]. A real or supposed lack of trust in public administration has also served as a motivation for public sector reforms.

There are important country-level differences in people's attitude to public administration and the civil service [13], [14], but it remains unclear to what extent institutional quality explains such differences. This paper studies the role of institutional quality in terms of process and outcomes for citizen trust in their public administration. It develops a model with three main predictors (institutional corruption, impartiality and quality) taken from a dataset on regional quality of government [15], [16]. It uses a unique pooled dataset of citizen trust in public administration at the regional level, with data on 173 subnational regions in Europe.

Current research on the relation between institutional quality and citizen trust in public administration and services has suffered from a number of shortcomings. First, earlier work on trust in public administration and its determinants has focused on single countries (see e.g., [17]–[21]) but increasingly, scholars have started doing cross-national studies as well [11], [22], [23]. Yet, most studies have a lack of level-2 units (countries or geographic units) thereby severely limiting the number of country-level predictors on institutional quality that can statistically be included in the analysis, and reducing the robustness of the findings. Studies focusing on e.g. EU countries only have 28 observations at level 2 which affects the power of such studies. In addition, the data from the International Social Survey Programme (ISSP), which has been used in most attempts to measure and explain variation in trust in the civil service (see recently e.g., [11], [22], [23]), only has data for 33 countries, spread across the globe.

Second, some institutional quality-related explanations for variation in trust in public administration have suffered from common method bias through using attitudes on institutional quality to explain trust as measured in the same survey. Some earlier studies (see above) have solved this by relying on for instance the World Bank Governance Indicators, but continue to suffer from a relatively low N at the country level. This paper attempts to solve this by combining two separate large datasets.

The paper first outlines why both public administration outcomes and processes may matter for explaining the trust citizens have in their public administration. It then argues that it is important to not just look at countries, but also at regions within these countries to develop institutional quality-related explanations for variation in levels of trust. We then introduce our data, which

consists of a pooled Eurobarometer dataset for the dependent variable (trust in public administration), and the European Quality of Government Index (EQGI) survey from the Quality of Government Institute for the main independent variables. Subsequently, a model looking at public administration outcomes and process (impartiality and absence of corruption) is developed and tested in dataset with 129,773 observation nested in 173 European regions.

2.2 Supply-side theories for explaining trust in public administration: Do outcomes and processes matter?

Government does not only have to “deliver the goods” [24, p. 77], it also needs to respect procedure. Good governance dimensions have an impact on political trust [25] as well as on trust in public administration [11], [22]. Our paper follows what Norris (2011) has called ‘supply-side theories’ that look to explain citizens’ satisfaction with the political system by looking at the structure, process and performance of institutions. One of the crucial debates in scholarship on trust in institutions has been whether citizens look mainly at outcomes or at process when forming opinions [26]. This distinction is quite commonly used in research [24], and earlier work on trust in civil servants has called for more attention to process to explain such trust [22].

A lot of the older work on trust in institutions has given attention to outcomes of the (political) system as drivers of changes in trust. This includes outcomes such as macro-economic developments or government performance. The link between performance of public institutions and citizen trust, however, is weak at best [27]. Citizens also have normative expectations, regarding fairness, impartiality and absence of corruption when evaluating public institutions. Recently we have seen more attention for process and procedures, largely inspired by the work of Tom Tyler on procedural justice [26]. Scholars have used this approach to focus in various domains and institutions, such as trust in the police and the courts [28], political trust [29], or trust in local government [30]. A recurring finding has been that both outcome and process are sources of trust, but that process matters more.

Public administration scholarship has also looked at the role of process and outcome evaluations for trust in public services or in civil servants. One of the earliest major studies on trust in civil servants was Anderson and Tverdova's [31] paper, in which the authors looked at the effects of corruption on trust in civil servants in 16 countries. Most other international studies have relied on the 2006 ISSP data. Van Ryzin, in a study using data from 33 countries, found that not only outcomes and service quality drive citizens’ trust in civil servants, but also, and perhaps even more, administrative process [22], [32, p. 438]. Houston et al. [11] performed a 21-country analysis of trust in civil servants looking at, amongst other, government performance and corruption perceptions, taken from the World Bank Governance Indicators and Transparency International. They found that “institutional quality accounts for variation in the level of trust across countries.” (p. 1210). More recently, Choi [23] looked at citizen trust in the civil service in 18 OECD countries, using bureaucratic characteristics to explain variation. Just like our study, it also relies on the QOG data, whereas the dependent variable is taken from the ISSP. Choi finds higher trust when bureaucracy is more impartial and more representative.

Our paper is an expansion of Van Ryzin's [22] study in the Journal of Public Administration Research and Theory and Houston et al. [11] paper. In our paper, we simultaneously look at the effect of outcomes (institutional quality) and process (impartiality and absence of corruption) on citizen trust in public administration. However, our paper uses regional-level data rather than nation-level data. We formulate three hypotheses.

H1 (outcomes): Public service outcomes positively influence citizen trust in public administration

H2 (process): Impartiality of public services positively influences citizen trust in public administration

H3 (process): Absence of corruption in public services positively influences citizen trust in public administration

2.3 Why looking at regional disparities is important

Attention for regional variation in institutional performance started with Putnam et al.'s classic "Making democracy work", in which he explored regional institutional performance in Italy [33]. Explanations for such differences can be due to different factors, such as centre-periphery inequalities, both macro-economically and in terms of the regional allocation and availability of public services, or historical factors having an effect on the (political) integration of certain regions into the country. Within Europe, and beyond, there exist important regional disparities in how citizens view government and public services. Examples are the North and South of Italy, the former East and West of Germany, as well as Belgium and Spain [34, p. 222]. Government, and its administration, is in some of the regions highly distrusted and met with suspicion, whereas in others this is less the case. This discrepancy exists despite these regions sharing the same formal institutions [35].

The focus in existing scholarship on explaining national-level variation in trust in public administration has some drawbacks. The samples used are often very heterogeneous and tend to contain countries located on different continents. Analyses on continental subgroups, which have been mainly performed for European and Asian countries, suffer from small numbers of countries, thereby reducing the number of variables that can be included at level 2 in multilevel models. Yet, most analyses about the citizen perspective on public administration have focused on the national level, because more extensive data did not yet exist [11], [19], [22], [23].

However, some studies have found intra-country regional differences. Lee and Van Ryzin [36], for instance found regional differences in their study of bureaucratic reputation of US Federal Agencies. They explained this by referring to the different impact policies have on different regions and communities [36, p. 5]. Likewise, del Pino, Calzada, and Díaz-Pulido [17] observed considerable within-country regional variation in attitudes towards public administration and in evaluations of its performance. They however failed to find an explanation for this substantial 17-region variation. Charron and Rothstein [37] in what can be considered the first large scale study of trust at the regional level found that regional variation in generalised trust is for 78% explained by country variation and 22% by regional variation [34, p. 227]. They also, just like the current paper, found that quality of government is by far the best predictor for such variation in trust. Berman (1997) also found jurisdictional variance in citizen cynicism, something he attributes to local economic conditions.

In an attempt to explain this regional variation, the current paper will analyse levels of trust in public administration measured at the individual level among individuals nested in 173 regions in 28 countries, using regional level data for both the dependent variable and the predictors.

2.4 Methodological approach

We examine predictors of citizens' trust in public administration using outcome- and process-related predictors at the regional level, and controlling for individual-level factors, using a multilevel binomial logit analysis. Data come from two surveys. The dependent variable and the individual-level control variables have been taken from five subsequent Eurobarometer survey that have been pooled. The independent variables at the regional level have been taken from the European Quality of Government Index (EQI) survey. Figure 1 show the provenance of the main variables.

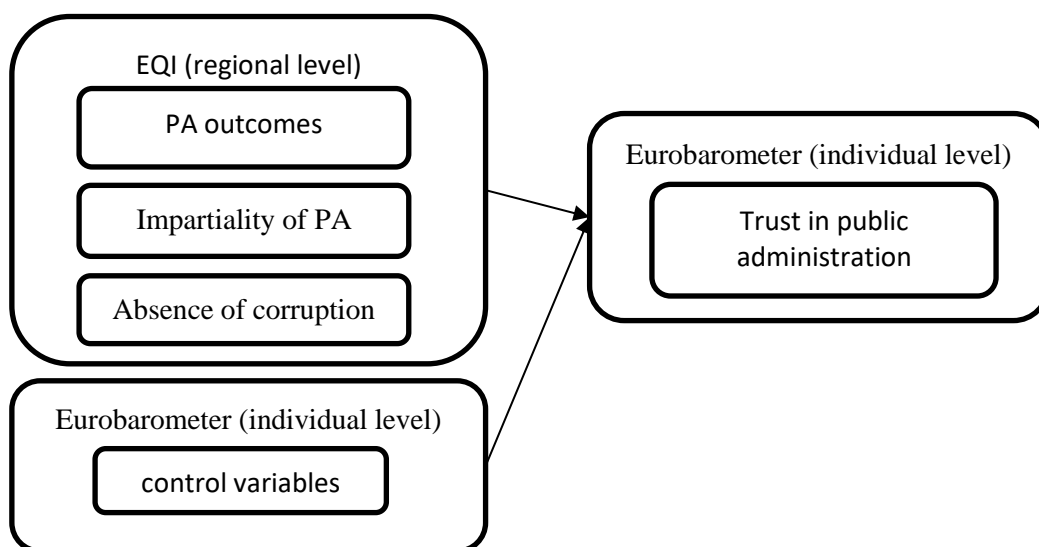


Figure 1: Structure of the analysis

2.4.1 Dependent variable

The Standard Eurobarometer contains a number of questions on respondents' trust in institutions. One of these in particular asks respondents whether they tended to trust their public administration: *"I would like to ask you a question about how much trust you have in certain institutions. For each of the following institutions, please tell me if you tend to trust it or tend not to trust it: Public administration in (OUR COUNTRY) "*. Respondents were asked to indicate whether they *tended to trust* or *tended not to trust* their public administrations. They were also given the opportunity to answer that they did not know. The 'don't know' responses were dropped from the analysis. In regional aggregates, these numbers provide the percentage of citizens that indicated to trust their national public administration (see figure 2).

We pooled data from five Standard Eurobarometer surveys, conducted between spring 2016 and spring 2018 [38]–[42] in order to obtain samples which are sufficiently large to be representative at the regional level. The Standard Eurobarometer is a bi-annual public opinion survey that collects data on the attitudes and opinions of EU-residents of 15-years and older. For each wave, approximately 1000 individuals per country are interviewed (except for Cyprus, Malta, and Luxembourg, where the sample is half that size). A three-stage random probability procedure is used to produce nationally representative samples [43]–[45]. Eurobarometer is originally designed for national-level comparisons. By pooling the data across different data collection rounds, we obtain a single dataset with a size that is sufficiently large to be also able to perform analysis at the regional level. Trust attitudes tend to be relatively stable over time, except in the case of major scandals. We use pooled survey data from five subsequent waves of Eurobarometer (EB 85.2, EB 86.2, EB 87.3, EB 88.3, and EB 89.1), conducted between May 2016 and May 2018. Pooling the data resulted in a dataset with $n = 129,773$ respondents, allowing for disaggregation at the subnational, regional level.

Regional affiliation is indicated using the Nomenclature of Territorial Units for Statistics (NUTS) classification. The NUTS classifications were designed to provide a regional breakdown of the EU's territory for the production of regional statistics, at the NUTS 1 (highest), NUTS 2 or NUTS 3 (lowest) level. Where possible, NUTS regions follow member states' existing administrative units (e.g., German Bundesländer or Belgian Regions). When making regions in the

Eurobarometer data, we used NUTS 2 levels, except when only information on the respondents' NUTS 1 was available. We excluded exclaves and European overseas areas from the analysis. In a final step, regional nomenclature was harmonized according to the NUTS 2016 classification [46]. Newly created regions were assigned scores according to their former constituent parts. (See appendix 1 for the included regions and the assignment of regional scores). Despite the pooling of the data, some regions still had fewer than 50 respondents in our data set, and were removed to increase reliability. This resulted in a valid N of 173 regions, with a combined total of 129,773 respondents.

2.4.2 Independent variables

To measure outcomes and process of public services at the regional level, we use data from the 2017 regional edition of the European Quality of Government Index (EQI) survey from the Quality of Government Institute (QOG) at the University of Gothenburg [16], [47], [48]. The data is based on a survey among 78.000 respondents from 192 European NUTS 1 and NUTS 2 regions, with samples of 400-450 individuals per NUTS region [16]. The regional EQI measures "average citizens' perceptions and experiences with corruption, and the extent to which they rate their public services as impartial and of good quality in their region of residence" [47, p. 6]. In addition to the regional disaggregation, the EQI data provides an extra advantage over the often used World Bank Governance Indicators in studies on trust in public administration (see e.g., [23]) by providing a more detailed and specific characterisation of bureaucratic quality.

Public administration outcomes were measured by asking respondents to assess the quality of the delivery of public services such as education, health care, and law enforcement in their region, ranging from 'extremely poor quality' (1) to 'extremely high quality' (10) (see also appendix 2).

Public administration impartiality was measured using three survey items: whether certain citizens received preferential treatment in the delivery of services, whether the tax authorities treat all people equally, and whether all citizens were treated equally in the provision of services.

Absence of corruption was measured by asking whether corruption was needed to get (a) basic public services and (b) special and unfair privileges, as well as whether regional elections were free of corruption. Furthermore, respondents were asked whether they had ever been asked to pay a bribe, and whether they ever paid a bribe [47], [48].

The three sets of items were aggregated into three composite indicators ('impartiality', 'absence of corruption', and 'outcome quality'). The aggregate scores were coded in positive direction, normalized to account for differences in the answering scales, and grand mean centered to improve interpretability [49].

2.4.3 Control variables

A number of control variables are added to account for variation in levels of trust in public administration due to factors that have been identified in earlier research as influential. We control for ideology. Earlier work on trust in public administration found an effect of political affiliation on confidence in public administrators [17], [50]. Houston et al. [11] did find that a affiliation with a left party is related to higher trust, but that a right political affiliation is not associated to lower trust. Lee and Van Ryzin [36] in their analysis of the reputation of US Federal Agencies among the wider public found that political ideology had different effects depending on the type of agency that was asked about. Ideology offers people shortcuts to opinion formation and predispositions citizens hold influence opinions [51]. The result is that citizens will evaluate the public administration in the light of these predispositions, rather than making a 'new' judgement [52]. Citizens' political left-right self-identification is likely to provide them

with a schema to come to opinions about the public sector, and the outcome and process of public administration. The mechanism through which political ideology works is not clear though. One could be that those on the right prefer small government and therefore distrust government [53]. Yet an alternative argument is that those on the left are more sceptical of government, and institutions in general [54, p. 315]. Finally, a relation between ideology and trust could also be explained by the congruence hypothesis, where a government that supports one's views is trusted more, and likewise the association between ideology and trust changes after a change in power.

Political ideology was measured as respondents' self-placement on a ten-point ideological continuum, ranging from left (1) to right (10). In addition, respondents were given the possibility to answer 'don't know' (12) or to 'spontaneously' refuse to answer the question (11). Because this question often results in a large amount of missing data, as well as to improve computational estimation of effects, we recoded the original responses into three groups: left: (1-4), center (5-6), and right (7-10). The other response categories were dropped.

Individuals' political interest was operationalized as the frequency with which they discussed national, European, and local matters on a yearly basis. Respondents were asked: *When you get together with friends or relatives, would you say you discuss frequently, occasionally or never about: national political matters / European political matters / Local political matters?* For each of the three questions, the answers ranged from (1) 'Frequently', and (2) 'Occasionally', to (3) 'Never'. A political interest index was constructed by summing the three dimensions into a single compound variable with four answer categories (1) 'Strong', (2) 'Medium', (3) 'Low', and (4) 'Not at all'.

Economic strain is a measure of the difficulty with which people need make ends meet on their current income and is inversely related to social and political trust [55]. It is assumed that such strain also increases respondents' dependence on public services, and we know this variable also has an impact on political trust [55]–[57]. Respondents were asked: *During the last twelve months, would you say you had difficulties to pay your bills at the end of the month?* Answers ranged from: 'most of the time' (1) and 'from time to time' (2), to 'almost never\never' (3). Respondents were also given the possibility to answer 'don't know' (7) or to 'spontaneously' refuse to answer the question (spontaneous). The answer categories were recoded into a positive relation, while the 'don't knows' and refusals were dropped from the analysis.

We also control for respondents' gender, age, and educational status. Lee and Van Ryzin [36], in their study of bureaucratic reputation found that female respondents have a more positive view of the reputation of agencies. Gender was coded dichotomously (men = 0, women = 1). A higher education is associated with more awareness of how public administration works, and the quality it delivers, but also better insights into quality problems of public services [13]. To control for education, we add educational status based on the age when respondents ended their full-time education. Categories range from 'no full-time education to stopped before the 16th birthday' (1) and 'stopped between the 16th and 20th birthday' (2), to 'stopped full-time education after the 20th birthday' (3). Respondents who indicated to still be studying were assigned to the categories 1, 2, or 3 depending on their age. 'Refusals' and 'don't knows' were recoded as missing. Age is recoded into four age categories (15 to 24, 25 to 39, 40 to 54, and 55 years and older)

Finally, we control for community type. Access to public services is different for rural areas than for larger towns. In addition, regional disparities and economic inequalities drive trust. These serve as heuristics for judging government fairness or procedural justice in the area (Cordova & Layton, 2016). Community type was measured on a four-item categorical scale: *"would you say*

you live in a: rural area or village (1); small or middle sized town (2); Large town (3); Don't Know (4)?". The 'don't know' category was dropped from the analysis.

2.5 Analysis and discussion of the results

The analysis includes 129,773 responses from 173 regions, gathered between the spring of 2016 and the spring of 2018. Figure 2 shows the percentage of respondents per region that indicated to trust public administration. Regions with a dark blue (green) colour are the regions with the highest trust, regions with a dark red (yellow) colour are the regions with the lowest trust. The regions in which the largest proportion of respondents indicated to trust public administration were Burgenland (AT, 91,5%), Salzburg (AT, 86%), Luxembourg (LU, 85,5%), and Carinthia (AT, 82,3%). The regions in which the smallest proportion of respondents indicated to trust public administration were Sardinia (IT, 1,2%), Umbria (IT, 7%) and Peloponnesus (EL, 8,2%). Overall, the regions with the highest trust are located in North and North-West Europe, while the regions with the lowest trust are located in South, South-East, and East Europe.

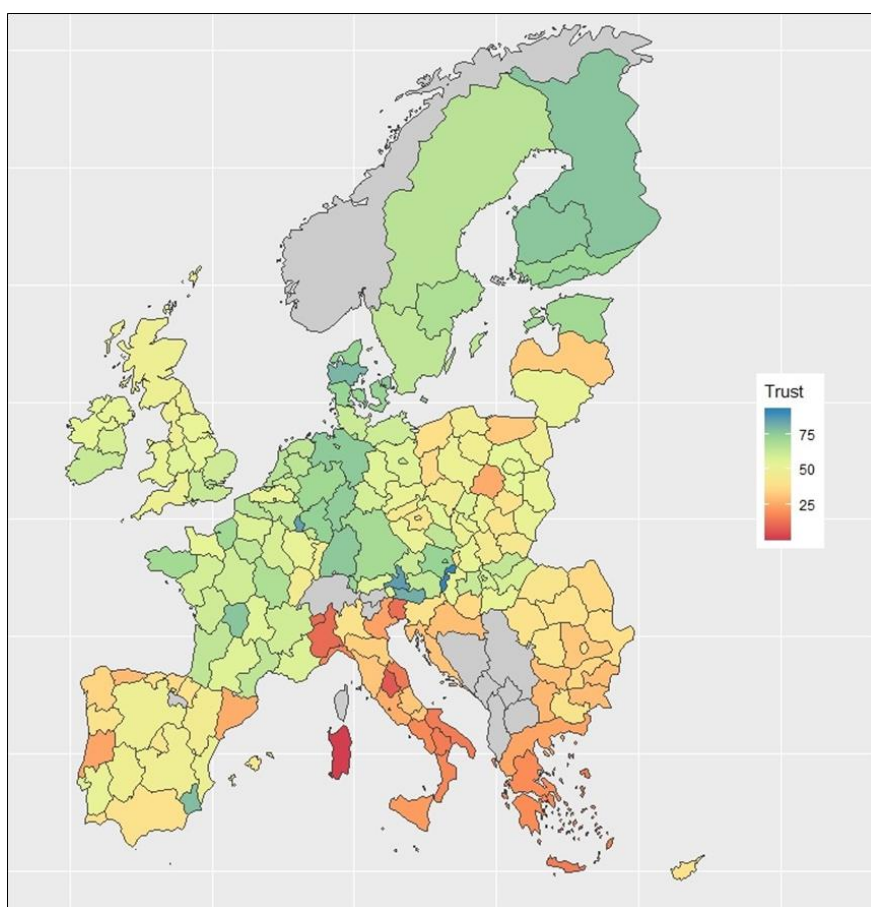


Figure 2. Respondents' trust in their national public administration per region

The regional variation in trust in public administration within countries can be large. The proportion of variance in respondents trust in public administration that can be explained by regional differences differs per country. Figure 3 presents proportion of variation explained by regional variance per country (in percentages). Regional differences are most pronounced in Italy, Austria and Spain. The countries in which the regional-level contributes least to the variance in trust are Croatia, Finland, the Netherlands, and Sweden. In the countries with a zero score trust was only measured nationally, and no regional data is available. These are all very small countries.

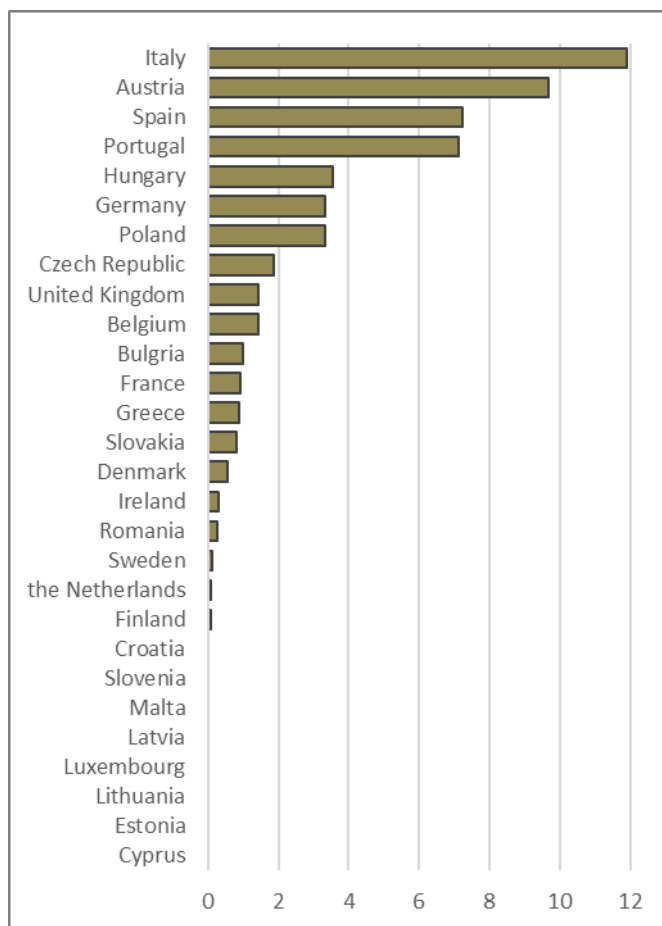


Figure 3. Proportion of variation explained by regional variance per country (in percentages)

2.5.1 A multilevel binomial logit model

We estimate a multilevel fixed effects binomial logit model using the generalized mixed-effects (glmer) function of the lme4 package in the software program R [58]. Five regions were excluded from the analysis because of too few data points in that region.¹ Results are displayed in odds ratios, indicating the change in the odds of respondents trusting their public administration compared to not trusting their public administration.

First, we estimated the need for a multilevel approach by estimating the proportion of variability in the logits of respondents trusting their public that could be explained by regional differences. We used an intercept-only or unconditional mean model (model 0) to estimate the intraclass correlation coefficient (ICC) [49], [59], [60]. With an ICC of .1661 we conclude that 16.6% of the variation in the logits of respondents trusting public administration can be explained by regional differences (e.g., level-2 variability).² As this proportion of regional variability is substantially different from zero, a multilevel approach is warranted [49], [59].

2.6 Findings

In the second step, we estimated the effects of the level-1 predictors (model 1), which are individual control variables in our model. The results show that two individual level predictors significantly affect respondents trust in public administration: economic strain and political

¹ These regions are: Cantabria (ES), Limousin (FR), Liguria (IT), Friuli-Venezia Giulia (IT), and Centro (IT),

² Conducting a similar analysis on country-based level-2 variation, we conclude that 14.18% of variation in the same logits of the odds is explained by differences between countries.

interest. First, respondents who experience economic strain have lower trust in public administration than respondents who do not experience economic strain. This effect becomes stronger as the experience of economic strain increases. Whereas the odds of respondents trusting their public administration are 29.3% lower for respondents who experience economic strain from time to time compared to never, these odds increase to 46.5% for respondents who experience economic strain most of the time compared to never. Second, respondents with low and medium political interest have higher odds of trusting public administration than respondents with no political interest. Respondents with low political interest are 10.6% more likely to trust public administration than respondents with no political interest, respondents with medium political interest are 17.9% more likely to trust public administration than respondents with no political interest. Interestingly, respondents with high political interest do not appear to be more trusting of public administration than respondents with no political interest are. The other level-1 predictor, political ideology, does not have a significant direct effect on respondents' trust in public administration.

We also find that gender, age, and education significantly affect respondents' odds of trusting their public administration. First, women are slightly more trusting of public administrations than men are. Second, the odds of trusting the national public administration are lower for respondents in the age categories 25-39, 40-54, and 55+ than for respondents in the age category 15-25. This effect is most pronounced for respondents in the age category 40-54 years compared to respondents in the age category 15-25 years. This is in line with earlier findings. Third, the number of years of formal education significantly affects respondents' trust public administration as well. For higher educated respondents the odds of trusting their public administration were 17.4% higher than those of respondents who had no formal education or who quit before their 15th birthday. The type of community does not significantly affect the odds of individuals trusting public administration.

2.6.1 Do public administration process and outcomes matter?

In the third step, we estimated the model with both individual-level variables (controls) and regional-level predictors (model 2). The regional-level predictors (public administration outcome and process). The three predictors are added one by one, and then together. First, the effects of the individual-level predictors are roughly stable across all models. All three regional-level predictors (absence of corruption, impartiality and outcomes) have a significant and strong effect on the odds of individual trusting public administration. This effect is the strongest for absence of corruption. When all three predictors are entered simultaneously, impartiality of public services no longer has a significant effect on trust, probably because this indicator captures a similar latent construct than absence of corruption. The absence of corruption and the perceived outcome quality of public services influence respondents' trust in public administration. Of these, the perceived absence of corruption has the strongest effect. For each standard deviation increase in the absence of corruption, the odds of trusting public administration rise by 39.1%. This corroborates Houston et al.'s 2016 findings where a similar strong effect of corruption on trust in civil servants was found in a 21-country study. This effect is almost double the size of the effect of the perceived outcome quality of public services. For each standard deviation increase in the perceived outcome quality of public services, the odds of trusting public administration increase by 22.3%. Controlled for the absence of corruption, the perceived impartiality of public services does not have a significant effect on respondents' trust in public administration. This shows that both outcome and process of public administration have an impact on individuals' trust in public administration, but that the effect is stronger for process. We conclude that hypotheses 1 and 3 are confirmed.

Table 1. Trust in public administration: Fixed-effects parameter estimates in odds ratios

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Intercept</i>	1.055	1.243***	1.253***	1.264***	1.226**	1.230**
<i>PolInt - No</i>	-	-	-	-	-	-
<i>PolInt - low</i>	1.106***	1.107***	1.105***	1.106***	1.107***	1.107***
<i>PolInt - Medium</i>	1.177***	1.179***	1.177***	1.178***	1.179***	1.179***
<i>PolInt - Strong</i>	1.035	1.036	1.034	1.034	1.034	1.034
<i>Ideology - Left</i>	-	-	-	-	-	-
<i>Ideology - Center</i>	0.991	.992	.991	.992	.992	0.992
<i>Ideology - Right</i>	1.000	1.001	1.000	1.002	1.002	1.002
<i>Economic strain - Never</i>	-	-	-	-	-	-
<i>Economic strain - From time to time</i>	0.705***	.706***	.706***	.707***	.707***	0.707***
<i>Economic strain - Most of the time</i>	0.463***	0.464***	.464***	.465***	.465***	0.465***
<i>Outcome quality</i>		1.457***				1.222***
<i>Impartiality</i>				1.359***		0.957
<i>Absence of Corruption</i>					1.505***	1.391***
<i>Gender - Men</i>	-	-	-	-	-	-
<i>Gender - Women</i>	1.046***	1.047***	1.047***	1.047***	1.047***	1.047***
<i>Education < 16</i>	-	-	-	-	-	-
<i>Education 16-19</i>	1.008	1.010	1.008	1.010	1.010	1.011
<i>Education > 20</i>	1.172***	1.174***	1.171***	1.173***	1.173***	1.174***
<i>Age < 25</i>	-	-	-	-	-	-
<i>Age 25-39</i>	0.844***	.844***	.844***	.844***	.844***	0.845***
<i>Age 40-54</i>	0.813***	.813***	.813***	.813***	.813***	0.813***
<i>Age > 55</i>	0.864***	.865***	.864***	.864***	.864***	0.865***
<i>Community type - Rural</i>	-	-	-	-	-	-
<i>Community type - Small/Middle town</i>	1.026	1.026	1.026	1.026	1.026	1.026
<i>Community type - Large town</i>	1.009	1.011	1.009	1.010	1.010	1.011
<i>ICC</i>	.1661	.1271	.0951	.1042	.0829	.0770
<i>Deviance</i>	164,391.9	131,390.4	131,338.4	131,356.8	131,315.4	131,302.6
<i>df.resid</i>	129,771	104,604	104,603	104,603	104,603	104,601
<i>AIC</i>	164,395.9	131,424.4	131,374.4	131,392.8	131,351.4	131,494.6
<i>BIC</i>	164,415.5	131,568.9	131,546.4	131,564.9	131,523.5	131,342.8

<i>N level-1</i>	<i>129,773</i>	<i>110,4621</i>	<i>104,621</i>	<i>104.621</i>	<i>104,621</i>	<i>104,621</i>
<i>N level-2</i>	<i>173</i>	<i>173</i>	<i>173</i>	<i>173</i>	<i>173</i>	<i>173</i>

*** = <.001; **=.01, *=.05

In total, the variables included in this model explain about half the variation of region-based trust in public administration (i.e. 8.29%). The remaining 8.91% of region-level based variation remains unexplained or random.

Because model 5 is nested in models 2, 3, and 4, we use χ^2 test to see whether model 5 provides a significant reduction in deviance compared to its three preceding models. The reduction in deviances by model 5 compared to models 2, 3, and 4 is 35.8, 54.2, and 12.8 respectively. These reductions are larger than the critical value under the χ^2 distribution at two degrees of freedom (Δ df. compared to model 5) at a significance level of p.005 (e.g., 10.8276). Model 5 is therefore a significant improvement to models 2, 3, and 4 (see appendix 3). These findings are corroborated by the AIC and BIC indices used for non-nested models. The lowest scores for the AIC and BIC indices are for model 5.

2.7 Discussion and conclusion

Using opinion data on trust in public administration among nearly 130,000 respondents nested in 173 regions, we find that public service outcomes (H1) and absence of corruption (H3) positively influence citizen trust in public administration. Impartiality of public services does not have an impact on levels of trust when controlled for the absence of corruption and the quality of public services. On its own it has a positive effect. While both process and outcome of public services have a significant effect on citizen trust, the effect of process (operationalised as absence of corruption) is larger than that of outcomes. These findings confirm earlier studies about the effect of process and outcomes on levels of institutional trust. This paper has also revealed that it is essential to look at the subnational level when analysing citizens' attitudes to public services, because in some countries within-country regional variation can be substantial.

While not the purpose of the paper, a preliminary screening of the data also shows that outcome and process appear to have a different effect on trust in public administration among different groups. Respondents' political leanings are relevant to whether outcomes or process are more important for trust in public administration. For left-leaning respondents, process (absence of corruption) is more important, whereas for right-leaning ones, outcomes of public administration are more important as determinants of trust in public administration. Trust in public administration among citizens who experience economic strain is influenced more by the outcome than by process. Presumably this is because they are personally directly affected by poor quality public services on which they are heavily dependent in their strained situation. These are factors that deserve further exploration.

In addition to its large sample, this paper innovates through disaggregating to the regional level, and through using different datasets for the dependent and independent variables. The focus on 173 regions means that the total number of level-2 units is sufficiently large to be able to run a robust analysis. It hereby improves on earlier analyses which have focused on the national level only and which therefore were limited by a smaller number of level-2 units (countries) in the analysis.

The paper has a number of limitations. The dependent variable is dichotomous (tend to trust/tend not to trust), which means answers are not very nuanced. Also, we have no means of checking whether trust attitudes have a foundation in respondents' direct personal experience with public service, even though our control variables have captured at least part of this aspect.

The number of observations per region are sometimes relatively small (all regions with fewer than 50 respondents have been excluded from the analysis), which may have an effect on the reliability of the analysis. Finally, data on the process and outcome of public administration are based on a survey and therefore subjective. Fully objective data allowing to compare the quality of public administration at the regional level (or even at the national level) do not exist. Earlier analyses on trust in public administration or confidence in the civil services [11], [32] have also relied on data that were at least partially subjective. The World Bank Government Effectiveness Indicator is, despite its name, also largely based on material taken from surveys. The corruption perceptions index used by Houston et al. [11] is also a subjective indicator.

3 Attitude and responsiveness of civil servants in involving other stakeholders in participatory policy-making

Public officials' attitudes toward public participation are a central determinant of the success of engagement practices. Authentic and genuine participation requires responsive public officials, willing to engage with the public [61]. However, the existing evidence on the determinants of such attitudes is scattered over case studies, survey research, (quasi)experiments, and discussions in multiple academic fields. In this structured review [1], [2] we aim to bring together evidence from Public Administration, Political Science, and Urban Studies research on the main determinants of public officials' attitudes toward public participation in public administration. For practitioners and scholars alike, this research provides evidence-based insights into how to improve the success of public participation endeavors.

3.1 Introduction Systematic Literature review

Public administration research has identified public officials' attitudes toward public participation as an important determinant of successful public engagement in administrative decision making [4]–[7], [62], [63]. Public officials play an important role in the design and implementation of participatory processes and unless they value the input of the public, it is unlikely they will let the public truly participate. In fact, Yang and Callahan, (2007) found that public officials' attitudes toward the value of public participation is the most important factor informing the decision to let citizens engage or not.

The studies that examined public officials' attitudes toward public participation indicates that officials hold a range of attitudes on public engagement [4], [5]. These studies find that officials are generally supportive of public participation [4], [7]. On the other hand, research among European top civil servants showed that, on average, public officials did not see the use of public participation as an important trend. The high variation in their answers does indicate that opinions about the topic diverge [3], [64].

A growing number of empirical studies have tried to understand why public officials hold positive or negative attitudes toward public participation processes. Research points out that public participation can increase decision making time and costs, and lead to sub-optimal decision-making outcomes [65], [66]. Other studies indicate that participation pushes officials to sacrifice administrative interests and control over the decision making agenda [67]. Research also indicated that public officials tend to dismiss participation that they see is unrepresentative [7], [68]. On the other hand, research has showed that public participation can increase the quality and legitimacy of policy and decision-making. For example, engaging citizen input in decision making can help to identify societal challenges and solutions [69], [70], to understand clients' needs and feedback [71]–[73], and can result in more effective problem solving practices by testing various solutions among multiple relevant stakeholders [74]. Furthermore, participation can foster community support for controversial policy decisions [75]–[77], provide citizens with a sense of policy ownership [65], [72], [78], and increases the democratic legitimacy of decision-making [7], [79], [80].

This study aims to shed light on the determinants of public officials' attitudes and behaviors toward public participation. What determines public officials' positive attitudes and behaviors toward public participation and what determines public officials' negative attitudes and behaviors toward public participation? We conduct a systematic review following the PRISMA guidelines (Preferred Reporting Items for Systematic review and Meta-Analysis) [1], [2], [81]. The analysis focusses on empirical and theoretical English language papers published in Public Administration, Political Science, and Urban Studies journals between 1969 and 2018 (summer). Public participation in policy making is an important topic of research in all three of these fields

of research. We do not aim to synthesize the entire literature on public participation in different disciplinary fields, nor do we aim to formulate universally applicable rules on how best to make public officials' responsive to citizens' inputs. Instead, we aim to learn from different contexts and traditions. As Liao and Schachter [4] argue "we need a more comprehensive model of the antecedents of managerial attitudes" (p. 1288). This research will help in reaching this objective.

The relevance of our review is twofold. First, given the importance of public officials to the success of public participation, we aim to offer the reader a balanced and evidence-based overview of the determinants that makes officials willing or unwilling to engage with citizens. This should help researchers and practitioners alike in making public participation more successful and genuinely participatory. Second, we apply a multi-disciplinary view to the extant body of knowledge on key determinants of public officials' responsiveness and participatory attitudes in a reproducible way, providing evidence on what is known and what should be studied in more depth both in public administration research, as in political science and urban studies research. In a way, it bridges the divide between public administration, political science, and urban studies research on public participation.

In the following two parts of this paper, we present our research approach and the first summary of the research results. We conclude with a conclusion highlighting the main findings of the systematic literature review.

3.2 Methodological approach

In order to collect, structure, and analyze previously published research on public officials' behaviors and attitudes toward public participation in managerial and decision-making processes in public administrations, we conduct a PRISMA-based systematic review. The PRISMA-approach (*Preferred Reporting Items for Systematic Reviews and Meta-Analysis* [1], [2], [81]) was developed especially to strengthening the rigor and trustworthiness of systematic reviews and meta-analyses [81]. At the same time, because the PRISMA-approach was developed within the context of medical-sciences, some changes had to be made to make the protocol applicable to social sciences research.

According to [1], a systematic review is a research method that allows research to "to collect all empirical evidence that fits pre-specified eligibility criteria to answer a specific research question" and uses "explicit systematic methods that are selected with a view to minimizing bias" [1, p. 66]. This makes systematic reviews transparent and replicable, and distinguishes them from traditional unstandardized literature reviews. The PRISMA protocol provides the guidelines on which the identification, eligibility, screening, and inclusion of relevant articles, as well as data extraction, analysis, syntheses, and the reporting of the findings takes place [1], [2], [81].

3.2.1 Eligibility

Eligible studies were studies that analyzed public officials' individual attitudes and behaviors toward public participation in public administration decision-making processes. We defined public participation based roughly on Nabatchi and Amsler [76] as: any activity that allows '*members of the public (i.e. those not holding office or administrative positions in government) [...] [to] personally and actively exercise voice such that their ideas, concerns, needs, interests, and values are incorporated in governmental decision making*' [76, p. 65S]. Studies on public participation at a local, regional, national, or supranational level were deemed eligible. Importantly, we focused on public officials. Studies on political office holders, executives, representatives, or other politicians were excluded.

Furthermore, we only included studies written in English and published in international peer-reviewed Public Administration, Political Science, or Urban Studies journals. We excluded books, book chapters, and other grey literature and focus solely on empirical studies. Finally, eligibility was limited to studies published between 1969 and (the summer of) 2018. The year 1969 was chosen as this is the publication year of the seminal Arnstein paper on citizen participation [82].

3.2.2 Identification and screening

Potentially eligible studies were identified using standardized searches in two electronic reference databases that focus on internationally published peer-reviewed studies, Clarivate Analytics' Web of Science and Elsevier's Scopus. Combining the search results of Web of Science and Scopus enhances coverages of the relevant literature.

Our search queries consisted of multiple levels and keywords aimed to scan records' titles and abstracts. Keywords and levels were organized using Boolean operators, with the [OR] Boolean to increase coverage (between keywords) and the [AND] Boolean to add specificity (between the levels). Whenever possible we used the truncation Boolean [*] to include plural variants of keywords in our queries. At the first level, search queries specified the subject area to which the search was limited (Public Administration, Political Science, and Urban Studies). At the second level, the search query specified the two sets of keywords for which records' titles and abstracts were scanned ('Public Official', 'Official', 'Manager', 'Public servant', 'Executive', 'Public professional', 'City Manager', 'Bureaucrat', 'Bureaucratic', 'Public Worker', 'Director', 'Policy Maker', 'Decision Maker', and 'Public Participation', 'Participation', 'Engagement', 'Involvement', 'Inclusion', 'Deliberative Democracy', 'Interactive Governance', 'Deliberative Engagement', 'Responsiveness'). At the third level, the document types (articles and early access) and the language (English) were specified. The search scripts are included in appendix 4 of this document.

The titles and abstracts, and if necessary the full text, of all the records identified in the electronic bibliographic search were screened on eligibility. Studies that were found to: (a) *explored, described, or analyzed public officials' individual attitudes and behaviors*, and do so about (b) *public participation in public administration decision-making processes* were deemed eligible. The titles and abstracts were screened by one researcher. Records of which it was not entirely clear whether they were eligible or not were assessed by two researchers before a final decision was made. With all identification and screening decisions, we choose to err on the side of inclusion.

3.2.3 Data extraction and analysis

Data extraction took place through the open coding of full-text records. All records were analyzed for text fragments describing public officials' determinants of positive or negative behaviors and attitudes toward public participation in managerial and decision-making processes in public administrations. Coding was conducted using the qualitative data analysis computer software package Nvivo, providing a detailed and robust analysis of the data.

All coded text-fragments were sorted according to topic and aggregated based on our main research question: what are the predictors of positive attitudes toward public participation? What are the predictors of negative attitudes toward participation? Which hypothesized predictors turned out not to affect public officials' attitudes toward public participation.

The database searches were conducted on August 30th, 2018. Using Web of Science, we identified 1.984 eligible records. Using Scopus we identified 1.423 eligible records. After merging the results of both searches, we identified 681 duplicate records and removed them from the selection. We then performed a first, title-based, screening of all 2.726 remaining records and

removed 1.707 records on subjects unrelated to our topic of research. Thirdly, we assessed the titles and abstracts of the remaining 1.019 eligible records based on our eligibility criteria and found 101 records that analyzed public officials' individual attitudes and behaviors toward public participation in public administration. A further nine records were removed after full-text assessment, bringing the total on $n = 94$ included articles. Figure 3 presents the flow diagram of the article search and selection process.

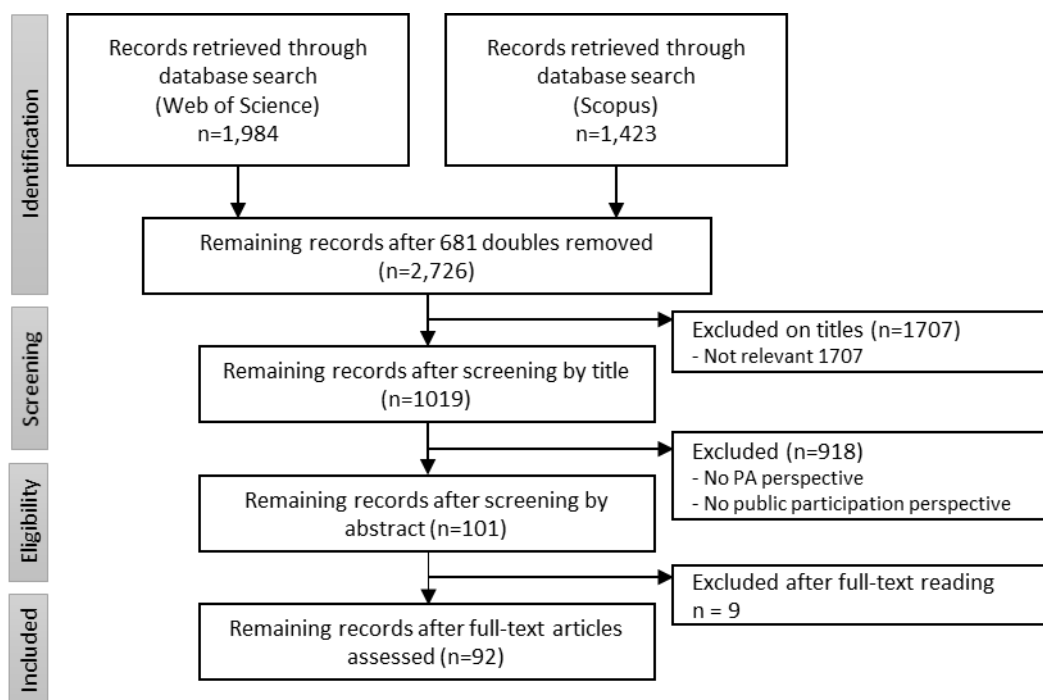


Figure 4. Flow diagram of article search and selection

The articles selected for this review are published in a wide variety of journals. We included articles from 49 different journals. *Public Administration Review* is the single greatest contributor to this review, PAR contributed a total of 18 articles. Other journals important to this review, at least quantitatively, are *Local Government Studies*, *International Journal of Public Administration*, *American Review of Public Administration*, and *Administration and society*. The importance of these US and UK based journals could indicate that the debate is dominated by the Anglo-American research. In addition, we can see that the field is dominated by Public Administration journals. Of the top-ten journals contributing most to the review, eight have a public administration background, two a political science background.

3.3 Analysis and discussion of the results

The determinants of officials' attitudes toward public participation are divided into five categories. The first category includes all determinants related to the design (and participation in) the specific participatory process. The second category comprises of the determinants related to the institution structure and culture in which officials are employed. The third category covers the social values and psychological traits that define how officials assess public participation. The fourth category describes the macro and meso-level determinants resulting from the administrative and political systems. Finally, the fifth category includes a set of

demographic characteristics related to officials' attitudes toward participation. Each of these categories is described and discussed in detail.

Table 2. Categories of determinants

Categories of determinants
1. Participation process characteristics
2. Institutional structures and culture
3. Social and psychological characteristics and traits
4. Political and administrative context
5. Demographics

3.3.1 Participation process characteristics

The literature discusses a number of characteristics related to the participatory process that influence public officials' attitudes toward public participation. These process characteristics include: design characteristics, participants' characteristics, the characteristics of the context in which participation takes place, the objectives of participation, and the input legitimacy of the participatory process.

Table 3. Participation process characteristics

Participation process characteristics
1. Design characteristics
2. Participants' characteristics
3. Context characteristics
4. Participation objectives
5. Process input legitimacy

The design of the participatory process, the cogs and wheels through which citizens participate, affect officials' attitudes toward public participation. Their willingness to consider citizens' inputs is, in part, dependent on how participation takes place. Officials seem to prefer well-structured and focused processes over more spontaneous ones [7], [83]–[88]. Some governments use external partners to ensure a rigorous application of participation methodology [89]. Other research found opposite results that indicate that officials are more positive toward informal gatherings [87], [90]. Participation in an early stage of the decision-making process is preferred over participation later [63], [89], [91]–[94]. Meaningful participation becomes more difficult when consequential decisions have already been made. Interestingly, other studies found that participation attendance goes up later in the fiscal year [63]. Participants' increased access to information, before and during participation, has been found to stimulate good participatory practices as well [83], [92], [95], [96]. However, providing too much information, thereby causing an information overload, can produce detrimental effects instead [97]. Using multiple participation methods simultaneously can increase positive attitudes as well [92], [98]. Process leadership is important as well [95], [99]. Transformational leadership [98], as well as issue framing and control of speaking time [92] increase officials' attitudes toward participation. A strong advocate for participation within the agency or local government is important as well [100]. A source of frustration is poor tailoring of design process to local circumstances [86], [91], [93]. For example, information documents not being provided in all local vernaculars [93]. At the same time, some officials prefer a need for less complex and cumbersome processes [83], [85].

Officials' attitudes are influenced by their perceptions' of the participants as well. In most studies, officials' assess participants in negative terms. A common perception is that citizens often lack the competences to provide meaningful input. According to some officials, participants either lack detailed and technical knowledge about the relevant policy issues, or do not possess the skills to make their opinions known to others. Instead, participation with competent citizens is valued [63], [67], [98], [100]. Yang and Pandey [98] find that participant competence is positively associated with perceptions of participation outcomes. Another common complaint is that participants are often indifferent to the issues at hand [92], [93], [95], [99], [101], [102], or are motivated by their own narrow self-interests and NIMBYs (Not-In-My-Back-Yard) [63], [87], [92]–[94], [101], [103]–[106]. According to some officials, participants' apathy could be the result of a participation overkill [107]. Conrad, et.al., (2011) quote one official stating: "80% of the time, the public is wrong and the only reasons people get involved are egoism and/or envy" (p. 772). A final complaint is that participants' inputs and opinions are often volatile and differ from person to person [108], [109].

Regarding the social and administrative context in which participation takes place, larger groups and constituencies [7], [84], [94], [110], with more outspoken preferences [84], and larger resources and power [84], [111] are more likely to be involved in participation than others. Larger regional governments and agencies are more likely to participate with citizens than smaller ones. They often have more resources and professional expertise to mount and conduct participatory processes [94]. Other studies find that small communities are more likely to participate in decision-making instead [112], [113]. Interlocking multiple constituencies and combining resources can also increase favorable responses from officials [114].

According to the literature, officials' attitudes toward participation are most positive when its objectives are in line with the interests of the agency or government organization [67], [89], [105], [115]–[117]. Objectives could include increasing the organizations legitimacy [67], [105], or increasing the quality of decision-making inputs [4]. Officials are also more positive about participation when they expect it to produce tangible and meaningful results that benefit the community [87], [91], [95], [99], [113], [118]–[122]. Officials' also prefer participatory processes in which objectives are realistic and obtainable [89], [91], [105], [123]. Interestingly, knowledge of previous successful participatory processes help cement positive attitudes toward participation as well [4], [124]. Perceived opposition to participation by citizens and colleagues [114], [125]–[127], as well as possible conflicts between the objectives of the government agencies and the participating citizens can have serious negative effects on officials' attitudes toward participation [104], [108], [116], [128], [129].

The input legitimacy of the participatory process affects officials' attitudes toward the public participation as well. The literature distinguishes between two dimensions: participants' representativeness and participant turnout. Participants' representativeness refers to the degree to which participants reflect the larger community and is discussed in 13 of the selected articles. In eleven of the selected articles, a lack of participant representativeness is found to have a significant negative impact on officials' attitudes toward public participation. Often, the same "professional" [105, p. 346] citizens show up, and officials tend to dismiss the inputs of these "usual suspects" whose involvement they perceive "troublesome" [98, p. 888]. Furthermore, these individuals are often unrepresentative of the larger population [94], [98], [101]. Participant turnout refers to the total number of citizens participating in the process and is discussed in six of the selected articles. Overall, turnout is positively associated with officials' participatory attitudes [95], [119], [130]. At the same time, Hong [63] finds that the more citizens participate, the smaller the influence of each participating citizen is.

3.3.2 Institutional structures and culture

The structure and culture of the organization in which public officials are employed also affect their attitudes toward public participation. The institutional characteristics discussed in the literature are the organizational structures, the organizational culture, officials' competences and resources, previous experiences with participation, and the specific policy area in which the organization is involved.

Table 4. Institutional structures and culture

Institutional structures and culture
1. Organizational structures
2. Organizational culture
3. Public officials competences and resources
4. Previous participatory experiences
5. Policy Area

A number of organizational characteristics are found to influence public officials' attitudes toward public participation. The agency's or municipal government's autonomy is found to have a positive impact on participatory practices in nine articles [63], [88], [113], [126], [131]–[135]. According to Neshkova [135], increased agency autonomy (measured as allotment control and own-source revenues) comes with the perceived need for greater public support and legitimacy. Officials of such organizations appear willing to search for support in public participation. Others show that a higher level of autonomy simply increases officials' possibilities to tailor the rules and procedures to the local context as well [88]. Five articles discuss organizational resources as a determinant of participation seeking behavior [97], [111], [113], [136], [137]. Liao and Zhang (2012) state that "Managers are more likely to incorporate citizen input when they could obtain more resources" (p. 27). Other organizational characteristics that are found to negatively impact officials' attitudes toward public participation are formalization [86], [137]–[141], organizational size [7], [112], [142], [143], hierarchy [93], [98], [136], [140], [144], a procedural orientation [145], personnel mobility [126], and red tape [4], [98].

Organizational culture affects officials' attitudes as well. A culture focused on community interaction, transparency, and openness appears conducive for public participation [89], [123], [136], [146], [147]. Some studies show that a customer-orientation foster public participation [100], [132], [148]. Whereas other studies show that a output-orientation has a detrimental effect on public participation behavior [101], [108], [112], [115]. Similarly, a conservative orientation and traditional management style are not favorable to public participation [89], [107], [133], [144], [149], nor is a technocratic orientation [4], [93], [128], [136].

Officials' assessments of their own deliberative and organizational skills play a role as well. Deliberative skills refer to the capacity to interact and participate with heterogeneous populations with different values and perspectives. Six articles discuss the importance of deliberative skills [85], [92], [93], [107], [147], [149], [150]. These skills include: interpersonal skills [85], [92], [147], [150] and the "art of conversation" [107, p. 471]. Methodological skills refer to the capacity to conduct a rigorous and methodologically sound participation process. According to research in six articles, a lack of methodological skills makes officials unwilling to engage with the public [89], [93], [101], [107], [127], [151]. In some cases, officials are insecure about whether they possess the capacity to conduct a participatory process or its inputs [93], [107].

Previous experiences with public participation were found to increase officials' attitudes toward participation in eleven articles [93], [97], [155], [107], [124], [136], [137], [145], [152]–[154]. Though two articles presented opposite effects [95], [116].

Some policy areas are more associated with public participation than others are. Officials employed in human services [136], the mayor's office, and parks & recreation [137], [141], community interaction, and ethics management [146], [154], culture, sports & recreation, and social services [139], [140], ecological issues [156], or issues of high salience [157] are more likely to support external support seeking behavior. Others showed that officials working on highly technical and complex projects were more interested in using participation to improve project outcomes than officials working in projects with low technical complexity [130].

3.3.3 Psycho-social characteristics

The literature has associated officials' attitudes toward public participation with a number of individual social and civic values and psychological character traits.

Table 5. Social and psychological characteristics and traits

Social and psychological characteristics and traits
1. Civic and social capital
2. Psychological determinants

The literature identifies a relation between officials' attachment to the neighborhood or constituency and their attitudes toward participation [85], [99], [102], [107], [108], [113], [117], [134], [147], [150]. According to Clark (2018), "lived experience in the local policy process, or lack thereof, shapes one's frame of equity in the process" (p. 364). Officials' who experience a strong sense of community are more likely to value public participation. Similar attitudes follow from a sense of civic duty [112], [139], [150], and elements of social capital [63], [93], [108]. Public officials' attitudes toward participation are related to their values and norms about public involvement and participation as well [7], [95], [139], [156], [158], [159]. Public participation efforts by local governments reflect "bureaucratic responsiveness to participatory values, stakeholder pressures, and administrative practicality" [7, p. 256]. Interestingly, Liao (2018) finds that "municipal managers have favorable attitudes toward public responsiveness in the abstract. However, their instrumental attitudes toward public participation are not encouraging" (p. 166). At the same time, officials' willingness to be responsive and participate with citizens have been found to affect officials' (actual) responsiveness to citizens as well [7], [113], [138]. This could hold true for e-participation as well. Zheng and Schachter [8] found that officials' willingness to participate with citizens is positively associated with their willingness to use ICTs, which is associated with increased e-participation offerings.

The literature identifies a number of psychological character traits that affect officials' attitudes toward participation. Two articles show that officials' job satisfaction is positively associated with their attitudes toward participation. According to Feeney & Welch [137], increased job satisfaction is associated with a stronger belief in that e-participation improves public participation and democratic governance. At the same time, Kumar, Kant and Amburgey (2007) find that job satisfaction is negatively related to officials' resistance against participatory practices. Three articles find a positive association between officials' PSM and their attitudes toward public participation [153], [160], [161]. Campbell and Im [160], find that the effect of PSM on officials' attitudes toward public participation is mediated by officials' high-level status, with PSM only positively affecting participatory attitudes for officials with high-level status. The effect of PSM on participatory efficacy is partly substantiated in research by Huang and Feeney [153]; who find that extrinsic motivation (as opposed to autonomous motivation like PSM) is

negatively associated with citizen participation. Two articles find a positive relation between officials' risk aversion and attitudes toward participatory practices [110], [162]. Moffitt [162] found that "reputation-minded" (p. 889) officials and agencies might prefer public engagement to share blame when products are risky and implementation depends on outside implementers.

Officials' trust in citizens is found to be an important determinant of officials' attitudes toward public participation in nine of the selected articles [85], [93], [98], [128], [144], [145], [160], [161], [163]. In his seminal article, Yang [145] defines officials trust in citizens as "administrators' belief that the citizens who are affected by their work (or whom they are serving), when they are involved in the administrative (or governing) process, will act in a fashion that is helpful (or beneficial) to administrators' performance (or goal fulfillment)" (p. 276). Comparing the effects of trust on public participation among 16.000 local officials in 18 countries, De Vries [163] finds that "the more local policy-makers trust people, the more they are inclined to seek the support of the public in policy processes" (p. 418). Finally, officials' feelings of insecurity are negatively related to their attitudes toward public participation. Government bashing is found to reduce officials attitudes toward participation in three of the selected articles [93], [112], [145]. Another six articles found that participation might induce a perceived loss of control, making officials reluctant to cede decision-making authority to citizens [67], [124], [164]. Practically, officials can place important decisions beyond participation through processes of gatekeeping [115], [128], [165].

3.3.4 Political and administrative context

Officials' attitudes toward public participation are also affected by influences outside of the personal, organizational, or process-related contexts. Such external influences identified in the literature include legal requirements, political, state and administrative structures, political pressures, and pressures from civil society and business.

Table 6. Political and administrative context

Political and administrative context
1. Legal requirements
2. Political, state and administrative structures
3. Political pressures
4. Pressures from civil society and business

Officials' attitudes (and behavior) toward public participation are influenced by the legal context in which participation takes place [93], [153], [156], [166]. In some sectors and policy domains, public participation is mandated by law [156]. The presence of a participation law is positively associated with increased participatory practices [153], and citizens that invoke such laws are more likely to receive swift and substantive responses by officials [166]. Interestingly, legislative requirements can also lead to goal displacement, with officials participating only following legal requirements [93], [139].

Politics exerts a direct influence on officials' attitudes toward participation. Support from elected leaders and politicians increases officials' willingness to engage the public [7], [91], [95], [98], [113], [133], [164]. Bureaucracies subjected to higher levels of political control are more likely to communicate with the public [152]. At the same time budgetary control can act as a mechanisms through which elected leaders can steer an agency in a more (or less) participatory direction [126]. However, political interference can undermine the legitimacy of participatory processes as well [83]. Unsurprisingly, other studies find that political interference can reduce

the likelihood of participation taking place and increase officials' resistance against participation [127], [129], [133], [151].

Indirectly, the political dimensions affects officials' attitudes toward public participation through the administrative and political systems [63], [93], [105], [127], [131], [139], [142], [158], [167]. Several authors found significant between country differences [85], [131], [163]. Sometimes states lack the political and technical capacity to implement participatory decisions [134]. The political culture plays an important role in whether officials participate as well, with moralistic cultures more likely to participate than others [111], [135]. At a local level, participation is most likely in cities and municipalities with a leftist-mayor [63], a council-manager system of administration [7], [141], racially diverse councils [4], [113], [122], high median income [4], less competitive elections and small political cleavages [96], [112], [157], and relatively weak party institutions [63], and with greater institutional resources and capacity [7]. Neuse [136, p. 261] argues that "bureaucrats feel that greater citizen input is a major factor in bringing about desired changes to an undesirable administrative system." Interestingly, officials' participatory attitudes can be affected by citizens [87], [128], [133], [141], civil society organizations [7], [63], [87], [133], [141], [156], [164], media [87], [92], [116], [124], [133], and business organizations [7], [87], [141] as well.

3.3.5 Demographics

The final set of determinants influencing public officials' attitudes toward public participation are the demographic characteristics of individual officials. Among these characteristics are age, education, gender, political preferences, seniority & tenure, and professional education (MPA: Master of Public Administration).

Table 7. Demographics

Demographics
1. Age
2. Education
3. Gender
4. Political preferences
5. Seniority & tenure
6. Professional education

Four of the examined articles include age as a significant variable [4], [137], [141], [154]. According to Liao and Schachter (2018), officials become more receptive to public participation as they become older. However, after reaching a certain age, their perceptions of citizens' contributions tend to decline while perceptions of the costs tend to increase. Education is included in three of the examined articles, showing a positive relation with participatory attitudes [7], [97], [124]. The articles included in this review consistently show that women are more positive about public participation than their male counterparts [112], [136], [137], [154], [166], [168]. Fox and Schuhmann [168] find a distinct "feminine voice" (p. 240) and argue that women are more likely than men to incorporate citizen input, facilitate communication, and encourage public participation in their decision making. The effects' of political preferences are less clear, with some authors arguing that leftist policy-makers are more open to public participation [139], while others found conservatives as more positive about public input [157]. Officials' seniority was included as a covariate in nine of the examined studies [4], [113], [122], [126], [143], [146], [154], [157], [160]. The majority of these studies found seniority to have a positive impact on officials' attitudes toward participation [4], [122], [143], [146], [157], though some found a negative relationship instead, [126], [154], [157], [160]. Powlick [157] finds that

seniority in years is positively associated with responsiveness to the public, while seniority in terms of rank assumes a negative association. Results regarding the effects of tenure remain inconclusive [137], [160]. Finally, officials' with a Master in Public Administration appear to be less willing to engage with the public than those without an MPA [4], [124], [146]. These results indicate that most MPA programs focus on traditional decision-making processes. Providing more attention to participatory practices in professional and in-house education could foster officials' acceptance of public participation [4].

3.4 Conclusion

In this study we have conducted a systematic literature review on the determinants of public officials' attitudes toward public participation, based on peer-reviews studies in the public administration, political science, and urban studies literature. Using records included in Web of Science and Scopus we identified a total of $n = 2,726$ possible articles. Using a multistage refinement process we obtained a final group of $n = 92$ relevant articles. These articles have been full-text assessed and open coded using Nvivo to produce the final categories of determinants. The determinants identified through this process could be divided into five categories (1 Participation process characteristics; 2 Institutional structures and culture; 3 Social and psychological characteristics and traits; 4 Political and administrative context; and 5 Demographics). Each of these categories was further specified and discussed.

Some of the determinants found in this review are worth to repeat in this conclusion. First of all, public officials matter. In our review we found countless examples of how officials' individual preferences and attitudes affected the outcomes of participatory processes. Their assessment of the quality of the design, the sophistication of the inputs, the knowledgeability of citizens, and their own competences all affect whether or not officials engage in participation and translate inputs into actual policies. Second, officials assess the competences of citizens when assessing participatory practices. The literature has established that officials do not willingly accept the inputs of everybody. They assess whether inputs are provided by citizens who know what they talk about, whether their inputs relate to the wider public, and whether citizens are related to the topic at hand. As such, officials act as a quality control. Normative research could establish whether such influences are democratically desirable or not, but the fact remains that these assessments have real-life consequences to the participatory process.

Third, the characteristics of the organization in which officials are employed affect officials' attitudes toward public participation as well. Depending on the policy domain in which participation is supposed to take place, on whether the organization is relatively autonomous to make its own policy decisions, and whether the organization is well endowed with material and financial resources, public officials are more or less willing to engage with the public. Additional characteristics that affect officials but in which the literature is less clear are the seniority of officials and perceptions of red tape. Especially the effects of red tape on officials' willingness to engage with the public could provide a fruitful avenue for future research. Fourth, the literature has also shown that determinants can differ from country to country and from administrative context to administrative context. The (very few) comparative studies that have been conducted thus far, show that officials in one country react quite differently to certain characteristics than officials in other countries do. The reader should therefore be careful not to adopt determinants indiscriminately from this research and assume they are applicable to their own context. There is no one-stop solution to participatory practices and participation process requires a unique approach. Public officials (can) play a crucial role in translating general designs into tailor made approaches. Finally, the input legitimacy of participatory process plays an important role in whether or not public officials take serious the inputs of citizens. The literature has shown that officials appear to be very hesitant with adopting participation inputs when participants are

unrepresentative and few. Future research could play an important role in further dissecting the effects of input legitimacy on public officials' willingness to take citizens input into account.

In all, we have arrived at comprehensive assessment of the literature on the determinants of public officials attitudes toward public participation. This report can be used by scholars and practitioners alike to educate officials in becoming more participatory officials or to fine-tune and tailor existing or new participatory processes.

4 Supporting and preparing the holistic transformation of the public administrations based on their maturity

The sections below update, append and extend the content already provided in D2.1 and D2.2. Since this is the last version of this set of deliverables and in order to make it a self-contained section, several parts of the content presented in the aforementioned deliverables have been included in this document.

4.1 Purpose of the digital government maturity assessment

The main objective of the digital government maturity assessment is to evaluate and assess the digital maturity of a public administration with the aim of improving the current status. Initially, the scope of this maturity model was the coverage of digital aspects of the government and delivery of digital public services. However, and after the considerations of the EC reviewers, the scope of the maturity model has been increased in order to incorporate other aspects such as the analysis of the willingness of civil servants to co-create with citizens, social factors of non-use of digital public services, user centricity, smart working, and so on.

The end result of the maturity assessment is a maturity level accompanied by set of recommendations that are based on existing reports coming from international institutions (e.g. European Commission, UN, OECD), literature and European regulations, recommendations and initiatives. The levels defined in this digital maturity model are as follows:

1. *Level 1:* Presence on the web. This means that a common place for distributing information to the public.
2. *Level 2:* Interaction between Citizens and PA is unidirectional. This means that the communication occurs but only from the government to the citizens. Some steps of service procedure could be done digitally, but still non-digital tasks are required to complete the services.
3. *Level 3:* Interaction between Citizens and PA is bidirectional. This means that the PA system allows citizens to have complete transactions (to complete the services digitally).
4. *Level 4:* Integration of services. This means that the PA acts as a “One-stop shop”, allowing the interaction among services of the PA from the same or different departments.
5. *Level 5:* Cross-border interaction. This means that the PA system allows the interaction with services of other PAs from the same or other countries.

It is important to note that this model does not aim to benchmark public administrations among each other but rather to compare them with an ideal situation and to provide them with a gap analysis in the form of recommendations. This is actually the main difference with respect to existing models and assessments provided by institutions such as the European Commission, UN, and so on.

This digital maturity model is implemented as an ICT enabler named DIGIMAT in the context of WP4.

4.2 Update on the process followed to design the digital government maturity assessment

4.2.1 Functional approach

As reported in D2.1, in order for the Digital Maturity assessment be effective, the authors have based the approach for its design on some basic premises, namely: (i) to be a tool for the PAs to assess their maturity level in digitalization with a comprehensive, multi-dimensional approach;

(ii) to request information in a structured and clear way so that the respondents do not hesitate in giving the answers, (iii) with a set of options available in order to be able to provide recommendations in an automatic way, with few manual intervention; and (iv) to base it, whenever possible, on official reports, benchmarks, best practices widely adopted in the industry, and legal regulations, etc.

With these premises in mind, a process described in detail in the following sections, and shown in the next figure, has been followed.

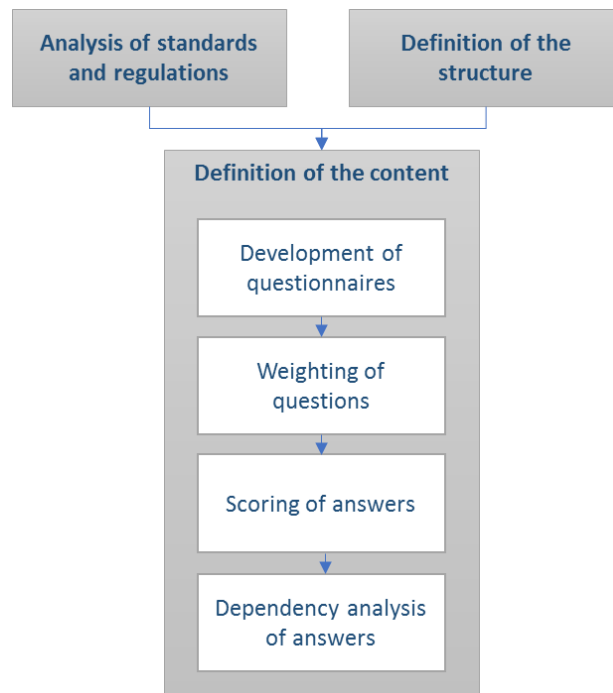


Figure 5. Process followed to create the DIGIMAT

4.2.2 Analysis of existing standards, studies and regulations

As mentioned beforehand, the maturity assessment developed in the context of CITADEL is based on different sources such as official reports, benchmarks, best practices widely adopted in the industry, and legal regulations, etc. D2.1 presents an initial set of sources used for that version of the assessment model. Next, additional sources used for the generation of the recommendations and questions are presented:

OFFICIAL REPORTS OF THE EUROPEAN COMMISSION:

- eGovernment Benchmark 2018 Background Report: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=55487
- ICT for work: Digital skills in the workplace: <https://ec.europa.eu/digital-single-market/en/news/ict-work-digital-skills-workplace>

EUROPEAN REGULATIONS, LEGISLATION AND COMMUNICATIONS:

- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS EU eGovernment Action Plan 2016-2020 Accelerating the digital transformation of government (COM/2016/0179 final): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0179&from=EN>
- The new European Interoperability Framework: https://ec.europa.eu/isa2/eif_en

- Full text of the European Interoperability Framework: https://ec.europa.eu/isa2/sites/isa/files/eif_brochure_final.pdf
- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS European Interoperability Framework – Implementation Strategy (COM/2017/0134 final): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017DC0134&from=EN>
- Directive 2013/37/EU of the European Parliament and of the Council of 26 June 2013 amending Directive 2003/98/EC on the re-use of public sector information Text with EEA relevance: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013L0037&from=EN>
- Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the re-use of public sector information (recast) (COM/2018/234 final - 2018/0111 (COD)): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018PC0234&from=EN>
- Ministerial Declaration on eGovernment - the Tallinn Declaration: http://ec.europa.eu/newsroom/document.cfm?doc_id=47559
- Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies (Text with EEA relevance): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2102&from=EN>
- Regulation (EU) 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union (Text with EEA relevance.): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1807&from=EN>
- NIS Directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L1148&from=EN>
- Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council Text with EEA relevance: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R1025&from=EN>
- COMMISSION IMPLEMENTING DECISION (EU) 2018/2048 of 20 December 2018 on the harmonised standard for websites and mobile applications drafted in support of Directive (EU) 2016/2102 of the European Parliament and of the Council: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=uriserv:OJ.L_.2018.327.01.0084.01.ENG
- European Parliament resolution of 24 March 2009 on Multilingualism: an asset for Europe and a shared commitment (2008/2225(INI)): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009IP0162&from=EN>
- DECISION (EU) 2015/2240 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2015 establishing a programme on interoperability solutions and common frameworks for European public administrations, businesses and citizens (ISA2 programme) as a means for modernising the public sector: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015D2240&from=ES>
- (eIDAS) REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0910&from=EN>

BEST PRACTICES AND STANDARDS:

- Accessibility requirements for ICT products and services – Harmonised European Standard: EN 301 549: https://www.etsi.org/deliver/etsi_en/301500_301599/301549/02.01.02_60/en_301549v020102p.pdf
- Web Content Accessibility Guidelines (WCAG): <https://www.w3.org/TR/WCAG21/>
- Responsive Web Design: <https://responsivedesign.is/guidelines/>; <https://learn.shayhowe.com/advanced-html-css/responsive-web-design/>

CITADEL Deliverables, internal documents and presentations:

- D2.1: Requirements and parameters for the selection of relevant information
- D2.2: Initial recommendations for transforming the public sector processes and services
- D3.1: Initial scientific study of co-creation and citizens' participation
- D3.2: Final scientific study of co-creation and citizens' participation
- D3.3: Initial report on how to involve most effectively the private sector in public service co-creation
- D3.4: Final report on how to involve most effectively the private sector in public service co-creation
- D3.5: Initial requirements for co-creation
- D3.6: Final requirements for co-creation
- D4.4: Final CITADEL ecosystem architecture
- D4.6: Final CITADEL Security toolkit
- WD4.3³: Intermediate CITADEL Ecosystem prototype
- WD5.2: Evaluation and impact of the intermediate use cases implementation
- Presentation by FINCONS on the Smart Working use case in Bari, presented in the General Assembly of Bilbao on January 2019.

4.2.3 Definition of the structure

As presented in D2.1, in parallel to the analysis of the relevant standards, the basic structure of the model was defined. This model follows a questionnaire-based approach in order to be able to analyse the answers in an automatic way and to provide recommendations to improve the digital maturity of the PA.

In order to facilitate the fulfilment of the questionnaires, the questions have been organised in four different dimensions. This facilitates that the questionnaire may be filled in by different persons.

The dimensions defined are:

- **Technology.** This dimension aims to assess how the organization is prepared for the digital stage. Here aspects related to ICT Issues are analysed. The questions in this dimension will be structured in two main areas:
 - **Data Processing:** Identify how the data are processed and which measures are taken as well as how these measures are analysed
 - **ICT Technologies.** Study if the PA is using the emerging technologies to implement and deliver its Public services.

³ WD stands for Working Document. This is an internal deliverable to the consortium.

- **Organization.** This dimension aims to assess how the processes of the public administration are prepared for the digital stage. The traditional processes to carry out transactions with the PA should be adapted to the Digital processes. The questions in this dimension will be structured in two main areas:
 - **Relationship with external agents.** Understand how the Public administrations manage the relationship with other departments/ PAs.
 - **Interaction with citizens.** Analyse how the PA facilitates to the citizens the involvement in the process of creation of public services and how the civil servants/citizens are involved in the decisions taken and so on.
- **People.** This dimension aims to assess how PAs interact with the different stakeholders. The questions in this dimension will be structured in two main areas:
 - **Interaction with citizens.** Understand how the citizens and PAs interact and which mechanisms are used by PA to facilitate this interaction.
 - **Training to the people involved.** Analyse if the PA provides proper training to all its stakeholders.
- **Legal.** This dimension aims to cover aspects related to the compliance with the GDPR. The questions in this dimension will be structured in following areas:
 - **Standards compliance.** Study if the PA is prepared to adapt their systems to be compliance with the applicable standards
 - **GDPR.** Understand the degree of fulfilment of the GDPR. The structure of this area and the way to calculate the compliance with the GDPR are different that in the other areas.

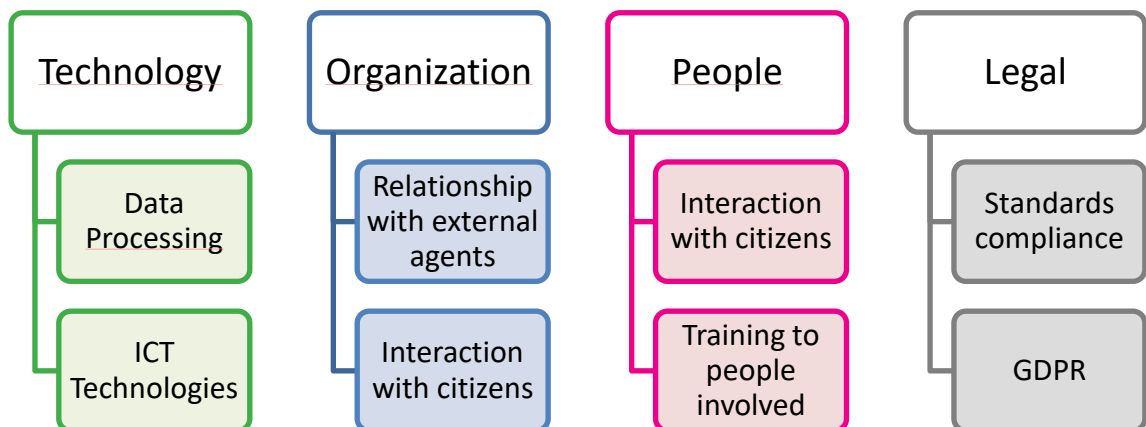


Figure 6. Dimensions and areas for the Digital Maturity Assessment Model

For the rating process of each dimension, each question has an importance assigned, depending on the influence of this question in the maturity of the PA, and each answer has a weight assigned.

4.2.4 Definition of the content

The tool is based on questionnaires. The user is asked a question and presented possible answers and, occasionally, free text to explain the answer or to provide further details. Both the questions and answers have been defined based on the analysis of the standards mentioned beforehand. All questions refer to the current situation of the PA, its workers and users, and the procedures that are followed.

As explained before, the maturity model is structured in dimensions and areas. Each question has been given a certain weight. The criterion for this weight is based on the interpretation of the stress given in the standard to that particular area by analysing the keywords used (e.g. must, should, shall) and the number of clauses related to it in the text of the norm. Additionally, each answer is also given a score. This score is the result of analysing literature and standards and interpreting the meaning of what it is to support a certain aspect compared to another in terms of digital maturity. The score achieved in a question is the product of the question weight by the response score. The total score of the questionnaire is the sum of all the questions' scores.

It is important to note that some questions present dependencies on others, and that a specific answer has an effect on the overall positioning logic. The set of questions, answers, their scores and weights, are collected in the sections that follows.

4.2.4.1 Global Maturity Level

In addition to the total score reported by the DIGIMAT (and partial scores for each area), a global maturity level is reported for the PA. This maturity level goes from 1 to 5 -as explained in point 4.1- and gives a first-sight score of the digital maturity of the PA. We assume that any PAs using the tool offer digital services, so it will have at least a Level 1; also, that a specific level is obtained only if its lower levels are also obtained. To calculate this level, some questions have been defined as 'Key Questions'. These 'Key Questions' are determined to be "killer" questions in the sense that a global maturity level can be achieved -or denied- , based on their answer.

The key questions, with the logic associated with the level assignment, are listed below (the questions referred in the table by their Id -DP08, ICT04, etc- can be found in the paragraph 4.3):

Table 8. Key questions to determine the Global Maturity Level

Q. Id	Response	Rule
DP08	[5] None	Level 4 and 5 not possible
ICT04	c. Not at all d. Do not know	Level 4 and 5 not possible Level 4 and 5 not possible
ICT05	[1] Yes, with other services of the same department [2] Yes, with services of other departments [3] Yes, with services of another National PA [4] Yes, with services of another international PA [5] No	Level 4 Level 4 Level 5 Level 5 Level 4 and 5 not possible
ICO02	[2] e-consultation: organizing public consultations online [3] e-decision making: involving citizens directly in decision process	Level 3 Level 3
ICP05	[1] A first list of e-services is shown based on the profile of the citizen and past searches/uses	Level 2
ICP09	a. Yes	Level 3
ICP10	a. Yes	Level 2
ICP12	[1]* Traditional (e.g. in a Counter, Postal or by phone) (*alone) [2] Digital	Not level assignation Level 2
ICP15	a. Yes	Level 4

4.2.4.2 *Legal Maturity Level*

The legal level is calculated in a different way. The challenge of these questions are to define easy multiple choice questions which enable the self-assessment of a PA in legal terms under the GDPR, translating a complex situation in basic levels.

Four general levels of GDPR compliance have been defined, namely the following:

- **Clear compliance issue(s)** = high risk of trouble if data protection authority investigates
- **Paper compliance or low compliance** = risk of trouble if data protection authority investigates, but the most essential things have been taking care of, although significant gaps exist compared to best practice
- **Medium compliance** = low risk of trouble if data protection authority investigates, concepts have been applied both formally and in an acceptable manner in practice. Some decisions have been made to simplify things or save cost and effort rather than have the most privacy-minded solution and/or some improvements are possible
- **Full compliance** = near to no risk if data protection authority investigates, GDPR has been fully implemented according to best practices, i.e. all obligations of means have been satisfactorily fulfilled, while however keeping in mind the proportionality underlying the GDPR's obligations of means.

These levels are addressed per topic (or area; we use “topic” in the same sense we talk about “areas” in other parts of the document, as a subgroup inside a dimension). There are ten GDPR topics (the list of topics, questions and recommendations can be consulted in **Table 13. Recommendations for the Legal Dimension** in the paragraph 4.3.4), representing essential elements of GDPR compliance. An organization should not have “clear compliance issue(s)” in any topic, nor should it in any question in any of the topics, as this would be a clear compliance and/or liability risk.

Apart from that, organizations should strive towards full compliance, which is the ideal situation. However, this may not always be desirable for the organization, or even appropriate under the GDPR, depending on complexity of the organization and means available.

For each topic, recommendations are made to transfer an organization from the previous level to the next. The recommendations from level “clear compliance issue(s)” to “paper/low compliance” are logically also the minimum recommendations.

It should be clear that the recommendations are not binding legal advice. They cannot be in such a generalized manner, moreover depending on a stand-alone interpretation and implementation by a person within the organization, who may not have the necessary knowledge.

Level calculation

For each topic, several questions have been defined. Note that the answers may be shuffled in DIGIMAT, but for clarity purposes the following rules apply to the questions presented in this document:

- Answer A is the situation of (a) clear compliance issue(s). It gives zero points.
- Answer B is the situation of paper compliance or low compliance. It gives one point.
- Answer C is the situation of medium compliance. It gives two points.
- Answer D is the situation of full compliance. It gives three points.

Each question is weighed depending on importance to come to the overall score for the topic, which will then relate to one of the four levels being assigned to the topic as a whole, as described above.

Instances of questions where the answer results in “clear compliance issue” should always result in the final topic level of “clear compliance issue”. The weighing rules are explained further in the table below.

Table 9. How the levels are determined in the legal dimension

Topic number	Weighing	Compliance
1	Question 1.1: x1 Question 1.2: x1 Question 1.3: x1	One or more times “A”= compliance issues 3-4 points = low compliance 4-7 points = medium compliance 7-9 points= high compliance
2	Question 2.1: x1 Question 2.2: x1 Question 2.3: x1	One or more times “A”= compliance issues 3-4 points = low compliance 4-7 points = medium compliance 7-9 points= high compliance
3	Question 3.1: x1 Question 3.2: x1 Question 3.3: x1	One or more times “A”= compliance issues 3-4 points = low compliance 4-7 points = medium compliance 7-9 points= high compliance
4	Question 4.1: x2 Question 4.2: x1 Question 4.3: x1	One or more times “A”= compliance issues 4-5 points = low compliance 6-9 points = medium compliance 10-12 points= high compliance
5	Question 5.1: x1 Question 5.2: x2 Question 5.3: x1	One or more times “A”= compliance issues 4-5 points = low compliance 6-9 points = medium compliance 10-12 points= high compliance
6	Question 6.1: x2 Question 6.2: x2 Question 6.3: x1	One or more times “A”= compliance issues 5-7 points = low compliance 8-11 points = medium compliance 12-15 points = high compliance
7	Question 7.1: x1 Question 7.2: x1 Question 7.3: x1	One or more times “A”= compliance issues 3-4 points = low compliance 4-7 points = medium compliance 7-9 points= high compliance
8	Question 8.1: x1 Question 8.2: x1 Question 8.3: x1	One or more times “A”= compliance issues 3-4 points = low compliance 4-7 points = medium compliance 7-9 points= high compliance
9	Question 9.1: x1 Question 9.2: x1 Question 9.3: x1	One or more times “A”= compliance issues 3-4 points = low compliance 4-7 points = medium compliance 7-9 points= high compliance
10	Question 10.1: x1 Question 10.2: x1 Question 10.3: x1	One or more times “A”= compliance issues 3-4 points = low compliance 4-7 points = medium compliance 7-9 points= high compliance

As in all cases above, accuracy of the tool depends on how well the person filling out the questions can assess the actual situation at his or her organization.

4.2.5 How ratings are shown

As the user goes through the process of fulfilling the questionnaire, the scores will be actualized. Each category of questions is presented in a page, and an option at the bottom allows to save the answers for a future recall or modification, if the user wants. The score is automatically calculated for each area and dimension.

The scores are exposed, at first sight, in the area button, as a numeric value indicating the score against a theoretical maximum value ("*Score 57/99*", for example. See next figure). The same happens with the dimension score, that is the sum of the scores of the areas.

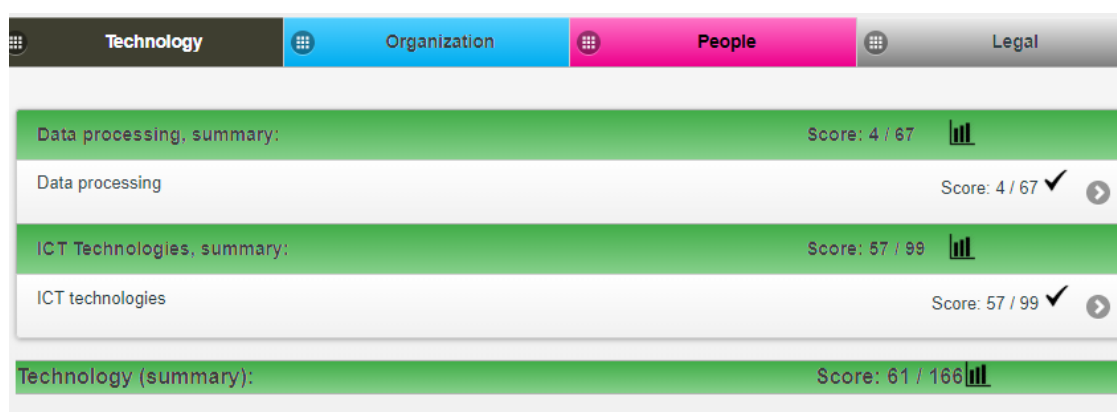


Figure 7. Numeric values in the area and dimension bars.

A graphical view of the scores is also offered in the tool. When the user pushes the chart icon in the area bar, a radar chart is presented, that shows the different areas and its scores as percentages of the area total (see Figure 8. Areas maturity radar chart).

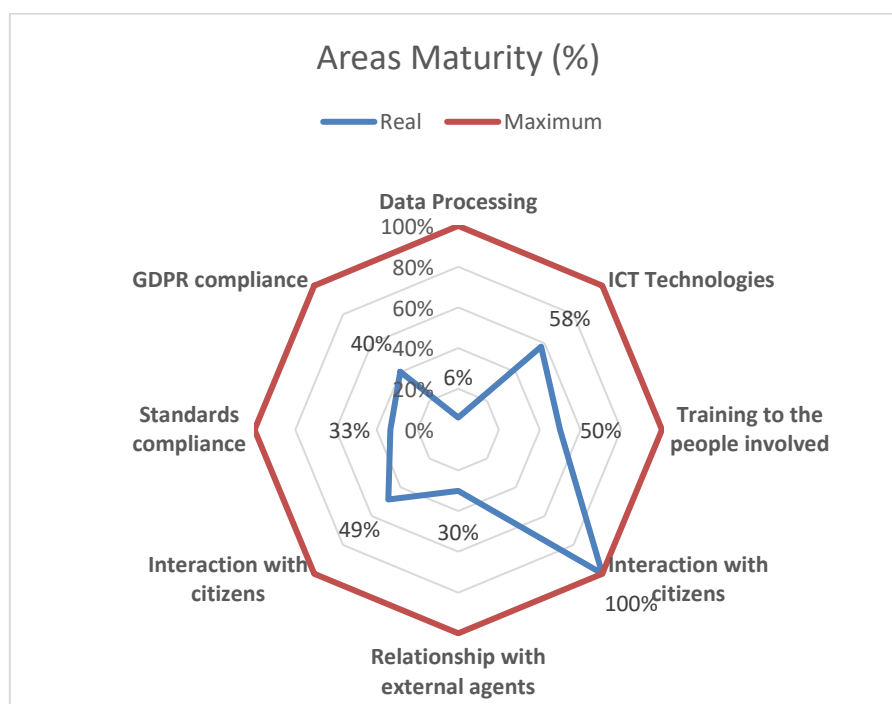


Figure 8. Areas maturity radar chart.

In the same way, when is the chart icon of a dimension what is clicked, another radar chart with the scores of the dimensions appears. There, a comparison of the maturity reached by each dimension, in percentage format, can be seen (see Figure 9. Dimension maturity radar chart).

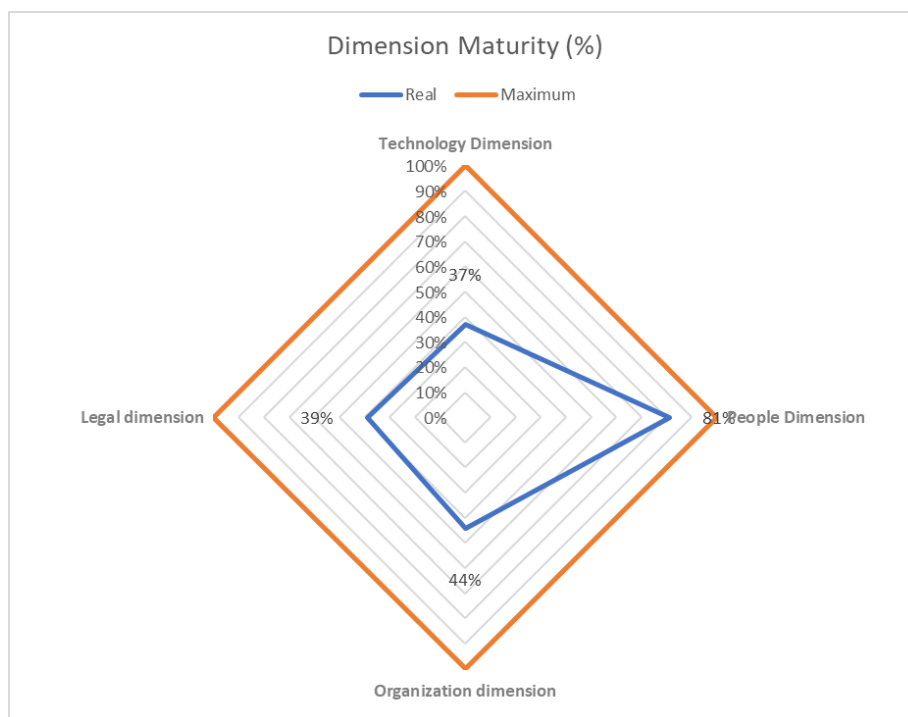


Figure 9. Dimension maturity radar chart.

4.3 Questionnaires: questions and recommendations

Next, the questions, potential answers and recommendations for each answer are presented. The baseline questionnaires are those presented in D2.1 that have been updated in agreement with the following actions:

- As result of an internal review by the team developing the maturity assessment: several questions have been reformulated to increase their understandability and readability. Also, some questions have disappeared, while new ones have been included.
- As a result of the validation activities carried out with the use cases in the context of WP5, who have provided recommendations and suggestions that have been included
- As a result of the workshop held during the General Assembly in Santander, where partners were divided into groups and were assigned with the following requests:
 - Are the questions under the right category?
 - Are they understandable?
 - Are you available to answer it? (based on your role)
 - How important would you consider it: High (red); Medium (yellow); Low (green)
 - How would you classify a more and less mature PA?
 - Are the questions under the right category?
 - Is the logic behind the scoring system solid?
- As result of the outcomes achieved in the other tasks of WP2, WP3 and WP5.

For readability purposes, the questions, answers and recommendations are presented in tables by dimension. To distinguish the single-answer questions from the multiple-answer questions, a different notations has been used for both: if the answers are labelled a, b, c... it denotes a single response question, whereas if the answers are labelled [1], [2], [3]... it denotes a multiple response question.

4.3.1 Technology

Table 10. Recommendations for the Technology Dimension

Dimension: Technology				
Area: Data Processing				
ID	Question	Answers		Recommendations
DP01	Do the citizens need to create a profile to use the digital public services?	a. Yes	R1	R1. Allow the user the possibility to use digital services without creating a profile. R2. Give the user the possibility to create a profile if he wants to. A profile can be laborious to be created the first time, but it will ease the work for future interactions.
		b. No	R2	
DP02	Which kind of data is collected in these profiles?	[1] Personal data, like: age, nationality, identification card, address...	R3	R3. Personal data is subject to GDPR (General Data Protection Regulation) laws. Make sure the legal conditions are met when using this data. For more information you can consult the CITADEL Legal VADEMECUM (D2.4) R4. Personal preferences can be used to adapt the view, or range of services shown to this particular user. R5. Data about the usage of public services can be used to personalize the list of services to each user and, if aggregated, to have statistical information about the services use. However, pay special attention to the compliance with GDPR Recital 30 "Online identifiers for profiling and identification"
		[2] Data related with the internet connection, i.e. IP address		
		[3] Data related with preferences	R4	
		[4] Data about the citizen's usage of digital public services	R5	

DP03	Does the PA take measures to ensure user privacy?	a. Yes		R6. Consider Data anonymization in line to GDPR. Data anonymization is the process of either encrypting or removing personally identifiable information from data sets, so that the people whom the data describe remain anonymous. The EU's General Data Protection Regulation (GDPR) demands that stored data on people in the EU undergo either an anonymization or a pseudonymization process. With data anonymization, even sensitive and confidential data retains enough meaning that stakeholders can glean insight without compromising security. You comply with corporate, industry, and government regulations for privacy because you don't expose the identities of individuals. Pseudonymization give service providers more flexibility than complete anonymization. In pseudonymization, another attribute is created to link personal identifiers to the anonymized identifiers such that data can be de-anonymized later. A risk management approach addressing digital security and privacy issues and including the adoption of effective and appropriate security measures, are measures to increase confidence on government services.
		b. No	R6	
DP04	Which are the mechanisms implemented regarding privacy issues?	[1]. Yes, anonymisation mechanisms of the data	R6	R7. The purpose of a password is to prevent unauthorized individuals from accessing data or resources. Even though passwords are not specifically mentioned in GDPR, a password policy should be set to prevent any accidental disclosure of passwords. This policy should include: guidelines for strong passwords, periodically reset of password and storage of passwords (preferably encrypted). R8. Encryption refers to the procedure that converts clear text into a hashed code using a key, where the outgoing information only becomes readable again by using the correct key. This minimises the risk of an incident during data processing, as encrypted contents are basically unreadable for third parties who do not have the correct key. Encryption is the best way to protect data during transfer and one way to secure stored personal data. Encryption as a concept is explicitly mentioned as one possible technical and organisational measure to secure data in the list of Art. 32(1) of the GDPR, which is not exhaustive. Additionally, the loss of a state-of-the-art encrypted mobile storage medium which holds personal data is not necessarily considered a data breach, which must be reported to the data protection authorities. R9. A risk management approach to address digital security and privacy issues, and to
		[2]. Yes, data is protected by passwords	R7	
		[3]. Yes, data is encrypted	R8	
		[4]. Yes, other. Specify [Add a text box]	R9	

				include the adoption of effective and appropriate security measures will increase confidence on government services (OECD Principle 4)
DP05	Are there any mechanisms to gather statistical data about the usage of the digital public services?	a. Yes	R6	R10. Statistical data about the usage of the digital public services may help to understand better the behaviour of the users, and to get insights on the quality and usefulness of the services provided. However, anonymization mechanisms and the avoidance of profiling the users by using their personal data must be considered.
		b. No	R10	
DP06	Does the PA publish or provide	a. Yes	R13a, R13b	R11. Data is increasingly recognised by governments as a strategic asset. By publishing and enabling the access, use and re-use of public data, the authorities enforce a data-driven culture in the public sector. This allows to (i) Enhance public sector intelligence to

	<p>access of open data (e.g. statistics, eservices, and so on) to the citizens' and to other e-services data on an open data portal? (e.g. the "EU open data portal")</p> <p>Note: the data can be published in a partial way</p>	b. No	<p>R11- R13</p> <p>support policymaking and service design and delivery; (ii) Develop a culture of data analysis and use within the public sector that helps predicting new needs and trends and understand how to improve existing processes and dynamics. (OECD Principle 3)</p> <p>R12. The published data can facilitate (Directive 2013/37/EU):</p> <p>(i) To increase the availability of data by bringing new types of public and publicly funded data into the scope of the Directive, such as data held by public undertakings in the utilities and transport sectors and research data resulting from public funding;</p> <p>(ii) To increase business opportunities by encouraging the dissemination of dynamic data via application programming interfaces (APIs).</p> <p>R13a. Use Open standard licences, for example the most recent Creative Commons (CC) licences, could allow the re-use of Public Sector Information (PSI) without the need to develop and update custom-made licences at national or sub-national level. Of these, the CC0 public domain dedication (http://creativecommons.org/publicdomain/zero/1.0/) is of particular interest. (Directive 2013/37/EU- Guidelines on recommended standard licences, datasets and charging for the re-use of documents, Chapter 2- Licenses).</p> <p>R13b. Use data formats that can be read and manipulated by either humans or machines (human - readable and machine-readable respectively). In order to make data FAIR (Findable Accessible Interoperable and Reusable), release your data in formats such as: CSV / Excel (structured), XML/JSON, RDF /SPARQL. The 5 stars Open Data by Tim Berners Lee (https://5stardata.info/en/) recommends to make the data available as structured data, in non-proprietary format, using URIs so that other sources can point to your data, and link it to other data in order to provide context.</p> <p>R13c: Make your data available in European or national data portals, so that anyone interested can harvest data from them and create added value services. For example, the principal function of the European Data Portal is to provide a single point of access in all 24 EU official languages for data published by public administrations at all levels of government in Europe. Going beyond the harvesting of metadata, the strategic objective of the European Data Portal is to improve accessibility and increase the value of Open Data. Within the portal, sections are dedicated to:</p> <ul style="list-style-type: none"> - Searching datasets: Categories have been established to structure the metadata harvested from the various countries. These categories follow the revision of the DCAT
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				<p>Application Profile and have been mapped against the Eurovoc Thesaurus.</p> <ul style="list-style-type: none"> - Providing Data: This section gives an insight into understanding Open Data from the perspective of a data provider. In addition, instructions are offered for those who wish their data portal to be harvested by the European Data Portal. - Using Data: How Open Data is being used, as well as the economic benefits of Open Data are detailed in this section. - Training and Library: eLearning modules about Open Data as well as training guides and a knowledge base referencing publications around Open Data and featured projects. <p>R13d: Consult the European Interoperability Framework and check the available ISA² Interoperability solutions and vocabularies for public administrations, businesses and citizens (https://ec.europa.eu/isa2/). The ISA² Programme supports the development of tools, services and frameworks in the area of e-Government. Most solutions and services are available free of charge to any interested public administration in Europe. This programme aims to ensure the interoperability among the different digital public services across Europe. To this end the portal provides resources for:</p> <ul style="list-style-type: none"> -DCAT Application Profile for data portals in Europe (use this to: Make the data easily searchable and discoverable in many languages for the highest number of data consumers possible). -Core Vocabularies (use this to (i) Enable the information exchange between systems, (ii) Integrate data from various sources, (iii) Publish data in a common export format) -Asset Description Metadata Schema (ADMS) (use this if you want to explore, (re-)use or share semantic assets -metadata or reference data-). -Core Public Service Vocabulary Application Profile (CPSV-AP) (use this to guarantee a degree of cross-domain and cross-border interoperability between public service catalogues.)
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DP07	Does the PA have in place a data long-term preservation policy?	a. Yes, following the legislation		R14. Digital preservation activities are essential in ensuring the continued use of digital material. A policy outlines the key actions and rationale behind the actions necessary to ensure that the data collections are permanently accessible in a form that is fit for purpose for end users.
		b. Yes, but not following any legislation	R14	R15. For Digital preservation, the Open Archival Information System (OAIS) reference model is an international standard which proposes common terms and concepts and a framework for entities and relationships between entities in digital preservation environments. OAIS is a conceptual framework and not a concrete implementation plan. InterPARES is another framework aims at developing the knowledge essential to the long-term preservation of authentic records created and/or maintained in digital form and providing the basis for standards, policies, strategies and plans of action capable of ensuring the longevity of such material and the ability of its users to trust its authenticity.
		c. No	R15	
DP08	To have “data interoperability” it is important to consider the meaning of the data (semantic aspects) and the precise format of the data (syntactic aspects).	[1] PA has an agreement for reference data, in form of taxonomies or controlled vocabularies	R16	R16. In order to maximise the benefits of the ‘high-demand’ datasets, particular attention should be paid to ensuring their availability, quality, usability and interoperability. To facilitate the use of data and increase the value of datasets for subsequent re-use, it is recommended that datasets be: a) published online in their original, unmodified form to ensure timely release; b) published and updated at the highest possible level of granularity to ensure completeness; c) published and maintained at a stable location, preferably on the highest organisational level within the administration, to ensure easy access and long-term availability; (f) accessible as data dumps (massive outputs of data) as well as through application programming interfaces (APIs) to facilitate automatic processing; R17: To facilitate the use of data and increase the value of datasets for subsequent re-use, it is recommended that datasets be published in machine-readable (Directive
		[2] PA has an agreement of using linked data technologies	R16 + R17 + R18 + R19 + R20	
		[3] PA has identified the meaning of the different data elements and the relationship between them	R18 + R19	

	Please select those answers that cover the PA situation.	[4] PA has defined the exact format of the information to be exchanged	R17 + R18 + R19 + R20	2013/37/EU) together with their metadata and at the best level of precision and granularity, open formats (CSV, JSON, XML, RDF, etc.), and formal open standards to enhance findability, accessibility, interoperability and reusability (FAIR principles);
		[5] None	R16	<p>R18: To facilitate the use of data and increase the value of datasets for subsequent re-use, it is recommended that datasets be described in rich metadata formats and classified according to standard vocabularies (DCAT, EURO VOC, ADMS, etc.) to facilitate searching and interoperability.</p> <p>R19: To facilitate the use of data and increase the value of datasets for subsequent re-use, it is recommended that datasets be accompanied by explanatory documents on the metadata and controlled vocabularies used, to promote the interoperability of databases; (Directive 2013/37/EU- Guidelines on recommended standard licences, datasets and charging for the re-use of documents, Chapter 2- Datasets)</p> <p>R20: To facilitate the use of data, dynamic data should be made available through an Application Programming Interface (API). In the case this is not possible due to technical or financial reasons, the public administration shall make available all documents so that the full potential can be exploited. The APIs shall be based on principles such as stability, use of standards, user friendliness, and security (Directive 2013/37/EU Recitals 27, 28).</p>
DP09	Does the PA have a Chief Data Officer (CDO)?	a. Yes		R21: A chief data officer (CDO) is a corporate officer, responsible for the governance and utilization of information as an asset. The CDO oversees a range of data-related functions that may include data management, ensuring data quality and creating data strategy. He or she may also be responsible for data analytics and business intelligence, the process of drawing valuable insights from data.
		b. No	R21	
Area: ICT Technologies				
ID	Question	Answers		Recommendations
ICT01	Are the digital public services accessible	a. Yes		R22: The EU eGovernment Action Plan 2016-2020 mentions ‘digital by default’ as one of the key principles for the digital transformation of the public sector. Digital by default means that public services shall be delivered digitally as the preferred option through responsive websites or applications without however, forgetting other channels. During
		b. No	R22	

	<p>from different types of devices (e.g. desktops, iOS, Android, ...) and are responsive?</p>		<p>the empirical study carried out in Latvia as part of the CITADEL project (documented in D2.1), it was reported, however, that in-person assistance remains essential. This not only related to complex cases, but also to more mundane issues when filling forms. The complexity of the electronic system and fear to make a mistake as well as lack of understanding of the procedure have a strong negative impact on the use of the electronic services. This means ease of use needs improvement, in line with the suggestions from the Technology Acceptance Model (https://www.sciencedirect.com/science/article/pii/S0360131518302458). In some areas, such as rural ones, the interaction with public services and therefore with civil servants can serve also as a social function as there can be a need to socialize, learn about the events in their area, meet people with the same needs and so on.</p> <p>The eGovernment Action Plan also recommends establishing a one-stop-shop or single point of contact with the provisioning of several channels (e.g. phone, on-site, customer centres, and so on).</p> <p>As stated in the Tallinn Declaration, the digital by default principle involves the following considerations, which should be applied to the digital services provisioned:</p> <ol style="list-style-type: none"> 1) User centricity principles, which include: digital interaction, accessibility, security, availability, usability, reduction of the administrative burden, digital delivery of public services, citizen engagement, incentives for digital service use, protection of personal data and privacy, redress and compliant mechanisms. 2) Foster the reusability of data, with the provision of machine – readable data in open and formal formats. 3) Improve the digital skills of the population 4) Improve the digital accessibility of public services by implementing the Web Accessibility (WAI) directive (see Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2102&from=EN). <p>The EU Directive 2016/2102 states in its recital 9 that ‘this directive aims to</p>
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				<p>ensure that the websites and mobile applications of public sector bodies are mode more accessible on the basis of common accessibility requirements’.</p> <p>5) Ensure trustworthiness and security, either with the implementation of eIDAS or authentication mechanisms or by applying the Network and information security (NIS) directive.</p> <p>Furthermore, all websites that provide a digital public service should be responsive to different devices. Responsive Web Design is made up of three aspects:</p> <ol style="list-style-type: none"> 1) Flexible Grid Layout: including a header, logo, navigation, body, content, social links, footer and so on. 2) Flexible Media, such as flexible images and iframes. 3) Media Queries, the ability to specify different styles for individual browser and device circumstances.
ICT02	Which of the following sentences describe best the infrastructure of the PA to provide the digital public services?	a. “On premise”. All the information and services are hosted on our own servers and resources	R23	<p>R23: Consider preparing the different systems, processes and services to be cloudified, following the ‘no-legacy principle’ stressed in the EU eGovernment Action Plan. The cloudification of systems may also involve a further and deeper analysis on the provision and implementation of the public service as such in its digital form (e.g. steps needed, roles, need to submit a form in paper format, and so on). To this end, it is recommended to study the citizens’ transactions in the digital services and understand what is stopping them from finalizing the execution of a transaction or from not trying themselves the execution of the complete transaction of the digital service.</p> <p>Once this analysis has been performed, the technical cloudification can start. There exist different options: pure migration, containerization, mixed approaches and so on. As to where to deploy the resulting cloudified digital service, the EU eGovernment Action Plan encourages the creation of a Cloud Infrastructure under the umbrella of the</p>
		b. Some of our services are hosted on the (public) cloud. Other services and data are hosted on our own services and resources	R24	

		c. All my services and data are hosted on public cloud services	R24	<p>European Cloud Initiative. Until the European Cloud Infrastructure is available to all public administrations, a private, hybrid or public cloud approach could be followed.</p> <p>R24: If a public, private or hybrid cloud approach is followed, the public administration shall make sure that no vendor lock in is applied from the selected cloud service provider (CSP) (recital 6 of the Regulation for a Free Flow of Non-personal data 2018/1807). Also, in accordance to the spirit of the Regulation for a Free Flow of Data, no data localization restriction shall be put in place, except in cases of national security, when procuring a cloud service.</p> <p>As stated in Recital 13 of the Regulation for a Free Flow of Non-personal data 2018/1807, it is of the utmost importance that public bodies and public authorities lead by example and they refrain from making data localization restrictions when using data processing services and cloud services.</p> <p>It is recommended that, following Article 6 of the Regulation for a Free Flow of Non-personal data 2018/1807, the selected cloud service provider complies with the principles of transparency, interoperability, follows open standards, provides means to facilitate the switching and portability of data among service providers (that is, adheres to the self-regulatory code of conduct for IaaS and SaaS currently under development), provides clear contract terms for switching and porting, presents clear approaches to ease the comparison of cloud services in terms of security certificates and security controls in place or is certified in the EU-wide cloud security certification scheme developed under the umbrella of the Cybersecurity Act (final text as of April 2019 not yet published).</p>
ICT03	Which security mechanisms are in place in the PA?	[1] HTTPS	R25	<p>R25: Consider increasing the level of security to access to your site analysing first the kind of information that is being exchanged. For instance, if payment related information is exchanged, consider applying encrypted transactions.</p> <p>R26: consider implementing at least the protocol HTTPS for secure transactions. Then increase security step by step.</p>
		[2] Encryption		
		[3] Security by design		
		[4] None	R26	

		[5] Other. Specify [Add Text box]		
ICT04	Does the PA put attention on ensuring the availability of their information systems to other systems?	a. Yes, all or most of the existing information systems can be accessed from other heterogeneous information systems		<p>R27: The eGovernment Action Plan 2016 – 2020 has set out as one of the key principles the availability of relevant digital public services available across borders, facilitating the Digital Single Market (DSM). This will be empowered also with the implementation and adoption of the once-only-principle through the eID, and more specifically, through the eIDAS.</p> <p>Moreover, in order to ensure availability among the systems and services of your same administration as well as cross-border availability, consider implementing the interoperability model established in the European Interoperability Framework. The interoperability model proposed in the European Interoperability Framework follows the paradigm of interoperability by design and it includes:</p> <ol style="list-style-type: none"> 1) Four layers of interoperability: legal, organizational, semantic and technical 2) A cross-cutting component, namely, the integrated public service governance 3) And the interoperability governance, namely the decisions on interoperability frameworks, arrangements, structures and so on. <p>Interoperability should be ensured in all four layers. While technical, semantic and occasionally organizational interoperability can be ensured with the application of standards, the legal interoperability can only be achieved through legislation at EU level or multilateral agreements. The ISA² programme has released the European Interoperability Reference Architecture (EIRA), accessible at: https://joinup.ec.europa.eu/release/eira/v300, which is a metamodel that includes all the necessary building blocks to ensure four layers of interoperability.</p> <p>Moreover, it is also recommended to provide the services in an integrated way in what it is known as integrated public service governance, ensuring their integration, seamless executions, and reuse of services and data. The minimum set of requirements to ensure such governance is:</p>
		b. Yes, but only some of the systems	R27	
		c. Not at all	R27	
		d. Do not know		

				<ol style="list-style-type: none"> 1) Roles and responsibilities, the organizational structure as well as the decision-making process must be defined 2) Interoperability aspects, including quality, scalability, availability and reusability shall be elicited 3) Clear definition of external information and services which are translated into service level agreements (SLA) 4) Definition and implementation of a change management process 5) Definition of a recovery plan
ICT05	Are the digital public services interoperable with others? (i.e. they share and integrate information; e.g. traffic department exchanges fines data with the treasury department)	[1] Yes, with other services of the same department		<p>R28: In order to ensure availability among the systems and services of your same administration as well as cross-border, consider implementing and complying with the interoperability model established in the new European Interoperability Framework.</p> <p>The interoperability model proposed in the European Interoperability Framework follows the paradigm of interoperability by design and it includes:</p> <ol style="list-style-type: none"> 1) Four layers of interoperability: legal, organizational, semantic and technical 2) A cross-cutting component, namely, the integrated public service governance 3) And the interoperability governance, namely the decisions on interoperability frameworks, arrangements, structures and so on. <p>Interoperability should be ensured in all four layers. While technical, semantic and occasionally organizational interoperability can be ensured with the application of standards, the legal interoperability can only be achieved through legislation at EU level or multilateral agreements.</p> <p>The European Interoperability Framework (EIF), supported by the Interoperability solutions for public administrations, businesses and citizens (ISA²) programme provides several solutions and recommendations in its JoinUp repository (https://joinup.ec.europa.eu/) in order to foster and promote the 'Sharing and Reuse' principles. This repository includes best practices, specifications, tools used in other PAs that worked well, as well as proof of concepts that can serve to understand the different interoperability levels and how they can be tailored to your own specific case.</p>
		[2] Yes, with services of other departments	R28	
		[3] Yes, with services of another National PA	R28	
		[4] Yes, with services of another international PA	R28	
		[5] No	R28	

ICT06	Does the PA use, for the digital public services, open specifications? (CPSV-AP, European Interoperability Framework, Linked Open Statistical Data (LOSD))	a. Yes, whenever is possible		<p>R29: As stated in the new European Interoperability Framework, the use of open standards is recommended so that all stakeholders can contribute to the development of the specifications, which are open for everyone to study. To this end, it is recommended to give preference to open specifications, taking into consideration the coverage of functional needs, maturity and market support and innovation.</p> <p>The European Commission, and more specifically its DG for IT, DIGIT, has made available in the JoinUp repository a set of solutions (https://ec.europa.eu/isa2/solutions_en) with this aim. Some worth mentioning for the definition and implementation of interoperable digital public services whose use should be put under consideration for the modernisation of your digital services:</p> <ul style="list-style-type: none"> Core vocabularies (https://ec.europa.eu/isa2/solutions/core-vocabularies_en): these are standard and extensible data models. There are open specifications available for Core Person (characteristics of a person), Core Business (characteristics of a legal entity), Core Location (characteristics of a location), Core Criterion and Core Evidence (principles and the means that a private entity must fulfil to become eligible or qualified to perform public services), Core Public organization (public organizations in the EU). Application profiles, standardising the semantics by providing a common data model. This is the case of the CPSV-AP (Common Public Service Vocabulary Application profile), which supports public sector organizations in their definition of their catalogue of services in a structured, easier to capture and machine-readable way. The current toolbox (https://joinup.ec.europa.eu/page/cpsv-ap-tools#Implementations) includes support solutions for the creation of public service description, an editor of public services, a data validator, a mapping editor tool and a harvester of public services descriptions. Asset Description Metadata Schema (ADMS) (https://ec.europa.eu/isa2/solutions/asset-description-metadata-schema-
		b. Yes, but not in all the cases	R29	
		c. Never	R29	
		b. No		

				<p><u>adms_en</u>), which provides a specification to describe interoperability solutions so that these can be searchable and discoverable.</p> <p>Proprietary solutions shall not be imposed to business and citizens, as well as to other public administrations. Europe is moving towards a Digital Single Market and this requires that data can be transferred among different systems, avoiding (vendor and technology) lock-in and promoting data portability. Data portability shall be ensured, and data localization restrictions avoided, except for security reasons.</p>
ICT07	Which mechanism does the PA use in its digital services to authenticate the citizens?	[1]. Electronic identification (eID card)	R30	<p>R30: If not yet fully achieved, consider the use of the eID to log into all digital public services following the once-only-principle, as stated in the EU Government Action Plan 2016 – 2020. Also, Regulation (EU) 910/2014 in its recitals 6 and 9 mention the need to recognize mutually electronic identification. Therefore, the means to achieve such mutual recognition must be put into place. Design, implement and monitor a risk management approach to address any security measures.</p> <p>R31: To increase the use of digital public services, trust is an essential element. While the duple username and password is a convenient and easy to implement authentication method, it is recommended to encrypt the password (e.g. MD5) or to implement a two-step authentication mechanism, be compliant with standard security protocols, set up a CAS, and so on. A more adequate approach would be the implementation of an electronic identification method. To this end, the Regulation (EU) 910/2014, which aims to set up the policy grounds for electronic identification means is of relevance. Design, implement and monitor a risk management approach to address any security measures.</p>
		[2]. User and password	R31	
		[3]. Other unique identifiers (e.g. a loyalty card)	R31	
		[4]. None	R31	
ICT08	If Electronic identification (e-ID card) is used, is eIDAS supported?	[1]. Yes, for citizens	R32	<p>R32: Consider the implementation and support of eIDAS for all stakeholders that access your systems. Design, implement and monitor a risk management approach to address any security measures.</p> <p>R33: Consider the implementation and support of eIDAS for all stakeholders that access your systems, and mutually recognize other eID mechanisms from other member states,</p>
		[2]. Yes, for companies	R32	
		[3]. Yes, for both		
		[4]. No, for none	R33	

				in compliance with the Regulation (EU) 910/2014 Design, implement and monitor a risk management approach to address any security measures.
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4.3.2 Organization

Table 11. Recommendations for the Organization Dimension

Area: Relationship with external agents				
ID	Question	Answers		Recommendations
R01	Does the PA provide digital services (information, links, services...) that facilitates the citizens to connect with other PAs (e.g. interoperability, cross-border services and once only principle)?	a. Yes b. No	R34	R34: The EU Government Action Plan 2016 – 2020 states the principle of cross-border by default, which recommends public administrations to make relevant digital public services available across borders with the aim of preventing further fragmentation. This cross-border availability will also contribute to citizens being able to work, live and study in other European countries. To achieve this, key enablers, such as eID and eDocuments need to be put in place. However, an initial step can be the provision of static information linking to sites of the other member states' points of single contact so that citizens and business can check the information they need.
R02	Does the PA involve key stakeholders* in the definition of the digital services? (*) providers, PA levels affected,	a. Yes b. No	R35	R35: According to the communication COM(2017) 134 on the implementation strategy it is stressed out that as end users, business and citizens should be involved in the design, analysis, assessment and evolution of European public services (section 4.3). To define a digital public service: 1. Identify the key stakeholders and the relationships: In the context of eGovernment, stakeholders include citizens, business, public servants and politicians, different levels of government, ICT providers of the PA, special interest groups such as NGOs. Moreover, 4 types of relationships can be identified: G2C (government to citizen), G2E (government to employees), G2B (government to businesses), and G2G (government to government).

	private sector, etc.			<ol style="list-style-type: none"> 2. Identify the scope of the digital public service: if it is an existing public service that has been previously monitored, assess the feedback by the citizens, identified problems and so on. If it is a new digital public service, identify the purpose. 3. Involve the stakeholders following different approaches. e.g. a co-creation approach, a participatory decision – making approach, and so on. 4. Monitor, identify lessons learned and improve
R03	Does the PA have clear defined roles and responsibilities for the design, co-ordination and implementation of digital strategies?	<ol style="list-style-type: none"> a. Yes b. No 	R36	<p>R36: Define the roles and responsibilities for each team member.</p> <ul style="list-style-type: none"> • Role is the function assumed by a person in a specific situation. • Responsibility is a set of activities or obligations a team member is accountable for when they are assigned a certain role.
R04	Are these roles and responsibilities known by all the people involved?	<ol style="list-style-type: none"> a. Yes b. No 	R37	<p>R37: The definition of clear roles and responsibilities is key to achieve a successful digital strategy. All team members must be identified, and their roles defined. A RACI (*) matrix can be a good tool to communicate all members what they are to expect.</p> <p>(*) RACI stands for Responsible, Accountable, Consult, Inform.</p>
R05	Is there a process for the definition of the digital strategies with all the required elements like funding, schedule, etc.?	<ol style="list-style-type: none"> a. Yes b. No 	R38	<p>R38: Develop a business case, articulating the business value proposition of the digital strategy. A good business case should contain the following aspects:</p> <ul style="list-style-type: none"> • Need • Goal • Stakeholders • Scope and methodology • Strategic alignment • Requirements • Restrictions and assumptions) • Limits of the project and the service • Risks

				<ul style="list-style-type: none"> • Milestones • Cost-benefit analysis • Alternative solutions • Budget assigned • Management of the budget • Conflict resolution • Management structure • Approval requirements • Sponsor
Area: Interaction with citizens				
ICO01	Has the PA implemented any digital approach to facilitate the citizens to participate in decision-making processes?	a. Yes b. No	R39	<p>R39: Although there exist non-digital alternatives for citizens to participate in decision-making processes, the provisioning of a complementary digital approach could result in a bigger participation of citizens to matters that worry them. Some of these alternatives include:</p> <ul style="list-style-type: none"> • e-information: provision of the information on the internet • e-consultation: organizing public consultations online • e-decision making: involving citizens directly in decision process
ICO02	Which of the following digital approaches are followed?	[1] e-information: provision of the information on the internet [2] e-consultation: organizing public consultations online	R40 R41	<p>R40: Consider a more interactive way to gather the interest of the citizens in participatory processes by using consultation techniques (e.g. surveys, polls), challenges, and so on. To this end, it is important to know the socio-demographic of citizens providing input so that it resembles that of the wider population. Also consider the number of citizens participating in service delivery and design.</p> <p>R41: Consider using several approaches to ensure a wider audience and participation, taking into account the goal that you want to achieve. The steps that should be considered when putting in place such participatory decision-making activities include:</p> <ol style="list-style-type: none"> 1. Establish the goal that wants to be achieved, including its limitations and assumptions 2. Analyse the willingness of the public officials involved in that participatory decision-making to engage with citizens

		[3] e-decision making: involving citizens directly in decision process	R41	<ul style="list-style-type: none"> 3. Analyse the confidence of the citizens in participating in such decision-making process 4. Establish the constraints cost, time and scope to determine the tools to be selected 5. Implement the decision-making process 6. Communicate the results 7. Monitor and evaluate
ICO03	When selecting citizens to participate in decision-making processes, which of the following characteristics are considered in the selection process?	[1] Their competences (expertise, technical knowledge, civic knowledge)	R42	R42: For the selection of the citizens it is important to know the socio-demographic profile of the target citizens using the service so that when the selected group provides input, it resembles that of the target population.
		[2] Willingness to participate	R42	
		[3] Age	R42	
		[4] Education	R42	
		[5] Income	R42	
		[6] Gender	R42	
		[7] Work status (employed non-employed)	R42	
		[8] Rural/urban areas	R42	
		[9] Regional residence	R42	
		[10] Language	R42	
		[11] Digital literacy	R42	

		[12] Other [Please describe...]	R42	
ICO04	Does the PA implement any approach to allow co-creation in the design and production of public services with citizens, businesses and other relevant stakeholders?	a. Yes b. No	R43	R43: Citizen and stakeholders' involvement is an important aspect for improving public service design and delivery. There exist multiple methodologies and approaches to foster co-creation. As an example, the CITADEL co-creation methodology can guide through the process of co-creating a public service. The CITADEL co-creation methodology (see CITADEL D3.8) has defined four phases: Ideation & Research, Concept & Design, Development & Implementation, Production & Maintenance. Each phase is subdivided into practical co-creation activities, linked to specific methods, techniques and tools, which move a co-creation project through the four phases.
ICO05	Does the PA provide any ICT support to facilitate the co-creation?	a. Yes b. No	R44 R44	<p>R44: An analysis of the citizens and stakeholders involved in the co-creation trajectory could, and should, be done in order to know if the use of the ICT tools could be beneficial.</p> <p>While co-creation can be performed without any ICT tool, the use of such ICT tools can allow to reach to citizens and stakeholders otherwise not possible. A hybrid approach using ICT and non-ICT tools is recommended.</p> <p>An exhaustive list of ICT and non-ICT tools and methods can be found in CITADEL D3.8.</p> <p>Some of the methods explained are: Design Principles, Focus group, Interview, Survey, Needs Analysis, Card Sorting, Probes, Define Your Audience, Extremes and Mainstreams, Brainstorm, Personas, Scenarios, Customer Journey, Co-Creation Workshop, Rapid Prototyping, Lo-fidelity Prototype, LEGO® SERIOUS PLAY®, Storytelling, MVP (Minimum Viable Product), SWOT Analysis, How Might We, Design Challenge, WWWWWH , World Café, Reverse Brainstorm, Usability Test, Expert (peer), Review, Top Task Analysis, Hackathon, Crowdsourcing, Use Case, Customer Satisfaction, Scrum and Sprint, Growth Hacking.</p>

				Some of the tools identified are: Privacy Checklist, Open Source PIA software, Storyboard, Dotmocracy, Five Why's, User Panel, Conversation Starters, Design Brief, Idea Dashboard, Community Canvas, Panel Circle, Panel Matrix, PESTEL, COCD-Box, Information Architecture, Affinity Diagram, GPS-brainstorm kit, Wireframes, Prototype Testing Plan, IDEO Prototyping Course, DIGIMAT, CITADEL KPI Report, CITADEL User Assessment Analysis, Innovation Support Platforms, Social Media, Business Model Canvas, Value Proposition Canvas, Lean Validation Board, CTA toolbox, Web statistics, Co-creation workshop guidelines.
ICO06	Select the tools used from the list:	[2] Social media	R46	R46: Consider using several tools to ensure a wider audience and participation, taking into account the goal that you want to achieve. A hybrid approach using ICT and non-ICT tools is recommended.
		[3] Mobile app	R46	
		[4] Collaborative tools (story boards, workshop focus groups, online surveys...)	R46	
		[5] On-line rating and voting of different ideas	R46	
		[6] Ad-hoc collaboration platforms	R46	
ICO07	Does the PA have mechanisms to measure the participation of the citizens in the co-creation process?	a. Yes		R47: Only processes that are measured can be improved. Literature does not formally report which aspects are recommended to be measured in a co-creation process, but empirical analysis recommend to the following: <ul style="list-style-type: none"> Citizens and stakeholders' satisfaction in taking part of such a process considering the approach taken, the tools used, the outcome, the post-mortem communication, etc.
		b. No	R47	

				<ul style="list-style-type: none"> • Incentives that make stakeholders to want to participate in co-creation activities such as sense of ownership, contribution to the community and others, beyond financial. • The amount of resources needed to start and maintain a co-creation process and the return of it, measured not only in monetary terms but also in other aspects. • The communication mechanisms put in place, not only between the public administration and the stakeholders but also among the stakeholders themselves.
ICO08	Are these metrics used to improve the co-creation?	a. Yes b. No	R48	R48: Only processes that are measured can be improved. Evaluate the metrics collected, as well as their quality and usefulness and modify them, when appropriate.
ICO09	When selecting the citizens to participate in co-creation processes, which of the following user characteristics are taken into account in the selection process?	[1] Their competences (expertise, technical knowledge, civic knowledge...) [2] Willingness to participate [3] Age [4] Education [5] Income [6] Gender [7] Work status (employed non-employed) [8] Rural/urban areas	R49 R49 R49 R49 R49 R49 R49	R49: For the selection of the citizens it is important to know the socio-demographic profile of the target citizens using the service so that when the selected group provides input, it resembles that of the target population. Co-creation works best if the backgrounds of the target groups are taken into consideration. Deep knowledge can be a barrier to co-creation as much as no knowledge, if not calculated.

		[9] Regional residence	R49	
		[10] Language	R49	
		[11] Digital literacy	R49	
		[12] Other [Please describe...]	R49	
ICO10	When defining the digital services, are the people in “digital exclusion” * taken into account? (*) People that have no access to digital technologies	a. Yes		R50: Consider analysing the main rationale for a digital public service not being used. There can be various reasons for this, such as lack of usability, complicated, papers to be submitted in a step of the process, but also lack of digital skills or poor internet connection. When involving stakeholders in the co-design and co-creation of a digital public service, consider including stakeholders that do not have enough digital skills in order to propose a solution that could include them. As an example, consider using pictograms to show the citizens where they are in the service being used, clear guidance, tips and so on.
		b. No	R50	

4.3.3 People

Table 12. Recommendations for the People Dimension

Dimension: People				
Area: Training to the people involved (Civil servants)				
ID	Question	Answer		Recommendation
TP01	Does the PA implement training programs to improve the use of digital public services?	a. Yes		R51: Consider the creation of customized training programmes for civil servants. To this end, identify the weaknesses exhibited by the civil servants to understand if the issue is with the process, the digital skills or from any other reason.
		b. No	R51	

				Also, consider the organization of sessions with citizens where they can learn how to perform an end-to-end transaction from a digital public service.
TP02	Which channels are used for this training?	[1]. On-site training [2]. Video tutorials [3]. User manuals [4]. Virtual assistant	R52	R52: A multi-channel training offering combining on-site training with online means and self-learning activities should be followed. This allows to learn at their own times and pace. Regular onsite sessions for specific topics should however, still be kept in place.
TP03	Is there any mechanism to identify training needs?	a. Yes b. No	R53	R53: Training needs can be divided into several categories namely: 1) Organizational: needs deriving from the business itself 2) Task related: comparison between what the public servant should know to be placed in a certain role and what the public servant actually knows. 3) Individual needs Identified through various means: <ul style="list-style-type: none"> Needs deriving from the organization: new or redefined process, tool update, policy and legislation change, and so on. Employee's performance evaluations Surveys Specific requests ...
TP04	To whom are these training programs addressed?	[1] Civil servants [2] Citizens [3] Business organizations	R54 R54 R54	R54: Consider extending these training programmes to other stakeholders.
TP05	What is the subject of the training for civil servants?	[1] Digital skills	R55 + R56	R55: The analysis reported in CITADEL D2.1, based on the European Working Condition Surveys (EWCS), showed that persons working in the public sector are positive about their skills in relation to their job

		[2] People management	R55	<p>requirements, but their skills satisfaction is lower than that for respondents not working in the public sector. Public officials also more often than workers in other sectors reported that they needed further training to cope well with their duties. While this could be a source of concern, the absolute number of persons reporting they need further training to cope with their duties indicates that a digital transformation would not be an impossible hurdle. However, continuous training in management of teams and people, communication with all stakeholders (citizens, business, civil servants from other departments and other countries, politicians) and digital transformation issues is recommended.</p> <p>R56: Studies available (see CITADEL D2.1) have also shown that internet and digital skills do not differ substantially between public administrators and ordinary citizens, but that ordinary citizens score marginally higher on operational internet skills, whereas public administrators score marginally higher on formal internet skills, information internet skills and strategic internet skills.</p> <p>To understand the exact needs in what regards digital skills training, evaluate:</p> <ul style="list-style-type: none"> • Number of public officials having basic ICT skills • Public officials' self-reported operational, formal, information and strategic internet skills • Public officials' satisfaction with digital skills • Number of public officials who have participated in formal ICT-related training <p>Provide the mechanisms for training the basic digital skills more frequently required, which are those related to searching for, collecting</p>
		[3] Communication Skills	R55	
		[4] Other [Add text box]	R55	
		[5] Understanding on Public processes	R55	

				and processing information via the internet and communicating using email
TP06	What is the subject of the training for citizens?	[1] Digital skills	R57	<p>R57: Provide the mechanisms for training the basic digital skills more frequently required, which are those related to searching, collecting and processing information via the internet and communicating using email</p> <p>R58: Organize sessions in e.g. customer or community centres where citizens can learn how to use a transactional digital public service and the underlying administrative activities behind it. As an alternative, provide user manuals or detailed explanations to show citizens how to use a specific digital public service and the workflow of such service (front office and back office), that is, what happens once the request has been submitted and the citizen waits for the answer.</p>
		[2] Public service procedures	R58	
		[3] Other [Add text box]	R57 + R58	
TP07	What is the subject of the training for business organizations?	[1] Public service procedures	R59	<p>R59: Organize sessions in e.g. customer or community centers where businesses can learn how to use a transactional digital public service and the underlying administrative activities behind it. As an alternative, provide user manuals or detailed explanations to show citizens how to use a specific digital public service and the workflow of such service (front office and back office), that is, what happens once the request has been submitted and the business waits for the answer.</p> <p>R60: Organize sessions in e.g. customer or community centers where businesses can learn how to apply, participate in and understand public procurement procedures.</p> <p>R61: Organize sessions to provide on-demand training to deal with the needs and expectations of business interacting with the public administration.</p>
		[2] Public procurement management	R60	
		[3] Other [Add text box]	R61	
TP08		a. Yes		

	Is it allowed in the PA the Smart Working for the civil servants? (Smart working can be understood as a mode of execution of the employment relationship characterized by the absence of time or space constraints and an organization by stages, cycles and objectives, established by the agreement between employee and employer; a way that helps the worker to reconcile the times of life and work and, at the same time, to favor the growth of his productivity (source: Libro bianco sull'innovazione della PA (2018))	b. No	R62	<p>R62: Smart working is a good lever in achieving the digital transformation as it could help to break down the traditional silos of government departments, improve public-service delivery and help ensure that the maximum value is achieved.</p> <p>Adopting more flexible practices to favour the life-work balance of civil servants can result in more satisfaction among them as well as in a higher productivity.</p> <p>However, in order to achieve a successful smart working initiative, the policies that need to be developed accordingly should have also front-line workers in mind.</p> <p>Some of the aspects that need to be considered before tackling a smart working initiative include:</p> <ul style="list-style-type: none"> • Training to civil servants with the appropriate means so that they can be efficient and effective • Training to front-line civil servants as their activities may shrink due to the digitalization and modernization processes • Reshape the office space to favour collaboration • Reduce / Eliminate paper updating accordingly the processes and procedures • Develop trust-based relationships • Focus on results-oriented measurements • Promote autonomy and initiative among civil servants
TP09	Is there an explicit agreement between the employee and the employer?	a. Yes		R63: In order to protect both the employer and the employee it is recommended to have a written and signed agreement.
		b. No	R63	
TP10	The processes and rules to be followed are clearly defined (i.e. days/week, slot allowed to do smart working, availability period, working period, etc)?	a. Yes		R64: Establish clearly the process and conditions under which the smart working apply. For instance:
		b. No	R64	
				<ul style="list-style-type: none"> • How many days a week (1, 2, ...) • Schedule permitted (e.g. from 6:00 am to 22:00) • Minimum availability period • How the start and end will be recorded

				<ul style="list-style-type: none">Other conditions: e.g. Freedom to carry on work partly at the office and partly as Smart Work, freedom to interrupt/resume activity in a Smart Working day, risks prevention and so on.
TP11	PA provides to the civil servants involved in smart working with the appropriate resources (PCs, data security...)	a. Yes		R65: To achieve a successful smart working initiative it is recommended to provide the affected employees with the means to effectively and efficiently carry it out. This includes the provision of: <ul style="list-style-type: none">a PC and the appropriate ICT toolsVPN and access to their files as if they were in the officemechanisms to track the start/stop timeensuring security and privacy aspectscompliance with the GDPR: Right of access by the data subject (Art. 15), Right to rectification (Art. 16), Right to erasure (Art. 17), Right to restriction of processing (Art. 18), Right to data portability (Art. 20), Right to object (Art. 21), Automated individual decision-making, including profiling (Art. 22).
		b. No	R65	
Area: Interaction with citizens				
ICP01	Does the PA ensure that people with disabilities, elderly or other disadvantaged group can have access to the digital services?	a. Yes		R66: The EU Directive 2016/2102 on accessibility expresses in its recital 12 that all member states have committed to taking appropriate measures to make sure that all people with disabilities can access to information and digital services in an equal basis with others. This is an agreement also with the UN Convention on the Rights of persons with Disabilities that stipulates the use of a “Universal Design” of websites and applications, so that persons with disabilities can access them in equal conditions. Recital 28 encourages the public sector to make all content accessible but non-accessible content may also be added as long as accessible alternatives are provided. Training and awareness of accessibility principles and directive should be encouraged for civil servants responsible of accessible websites, as well as for programmers and developers of said websites (Recital 47). Some official training resources are available at W3C website
		b. No	R66	

				<p>https://www.w3.org/WAI/roles/trainers/. More content to raise awareness in the EU regarding the WAI directive is expected to be delivered as part of the H2020 funded project WAI-Guide (https://www.w3.org/WAI/about/projects/wai-guide/).</p> <p>The use of authoring tools (Recital 48) such as the ones approved by W3C (list available at https://www.w3.org/WAI/AU/2002/tools) are aimed to assure a better implementation of accessible websites.</p>
ICP02	Does the PA offer its digital services taking into account the multilingualism?	a. Yes		R67
		b. No		
				R67: Recital 37 of the European Parliament resolution of 24 March 2009 on Multilingualism suggests to fully respect European multilingualism in media and Internet content. This entails to offer websites in multiple languages, at least those that are official in the country.
ICP03	The digital services offered are shown in the appropriate language in an automatic way based on the citizen's profile?	a. Yes		R68
		b. No		
				R68: If available, the digital services shall be presented to the citizen following his/her preferred option, otherwise it should be duly noted, and these offered in the official language or languages of the country.
ICP04	Does the PA comply with e-accessibility specifications? (e.g. Directive 2016/2102 on the accessibility of websites and mobile applications of public sector bodies, W3C WCAG or others))	a. Yes		R69
		b. No		
				<p>R69: The EU Directive 2016/2102 states in its recital 9 that 'this directive aims to ensure that the websites and mobile applications of public sector bodies are made more accessible on the basis of common accessibility requirements'.</p> <p>The EU Directive 2016/2102 on accessibility is based on four principles:</p> <ol style="list-style-type: none"> 1) Perceivability: content must be presented in a way in which the users can perceive it. 2) Operability: the information and operation provided in the user interface is operable. 3) Understandability: the content is understandable. 4) Robustness: the content can be reliably interpreted by a varied set of agents, including assistive technologies. <p>Public sector bodies need to take the necessary measures to make their website and applications under the four principles mentioned above.</p>

				<p>These principles are detailed into criteria in the harmonised standard at EU level for ICT products, which are referenced in the Commission Implementing decision (EU) 2018/2048 of 20 December 2018, which in its annex includes the reference to ETSI's standard EN 301 549 (https://www.etsi.org/deliver/etsi_en/301500_301599/301549/02.01.02_60/en_301549v020102p.pdf). In the case of websites, these shall be conformant with the Web Content Accessibility Guidelines (WCAG) defined by the W3C.</p> <p>For each of the principles outlined above, the WCAG identifies several characteristics and recommendations:</p> <ol style="list-style-type: none"> 1) Perceivability: text alternatives, time-based media, adaptable, distinguishable. 2) Operability: keyboard accessible, enough time, seizures and physical reactions, navigable, input modalities. 3) Understandability: readable, predictable, input assistance. 4) Robustness: compatible. <p>and adds a fifth one:</p> <ol style="list-style-type: none"> 5) Conformance <p>A quick reference on the principles for WCAG can be found here: https://www.w3.org/WAI/WCAG21/quickref/. It leads developers with techniques and tips to improve and implement accessibility. W3C has also accessible a list of tools that allow to evaluate the implementation of the accessibility guidelines https://www.w3.org/WAI/test-evaluate/tools/selecting/. A quick checklist to review the accessibility is available at: https://www.w3.org/WAI/test-evaluate/preliminary/</p>
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				Recital 46 of the EU Directive 2016/2102 establishes that a feedback mechanism should be put in place so that users can provide their requests and suggestions to improve the accessibility.
ICP05	Which mechanisms are used by the PA to ensure that the citizens find the services that they need?	[1] A first list of e-services is shown based on the profile of the citizen and past searches/uses		<p>R70: In order to improve user centricity, beyond the provisioning of FAQs, offline information, or chatbots, eGovernment portals could provide the catalogue of digital services personalized for that type of citizen, while keeping in mind the GDPR and privacy regulations.</p> <p>For instance, a personalization by levels could be implemented, where:</p> <ol style="list-style-type: none"> 1) Level green: Information provided by the browser through which the personalization service is accessed. This information is always available, for example, the current time and the local language. 2) Level orange: Information stored in the browser (i.e. cookies). To obtain this information the citizen's consent is required. 3) Level red: Profile form of the citizen is required. The citizen can complete a form with personal information. This information will not be stored, and it will only be used to perform the search. Although the information it is not stored, the citizen's consent is required. <p>When the citizen logs in, the services found using the green and orange level information will be displayed. The citizen will have the possibility to personalize the search further by completing the red level information. In addition, to check that the services comply with the information provided in these levels, it is verified that they comply with a set of rules that could be previously established by the administrator of the service. These rules are defined by the administrator of the digital service, who has the knowledge of the context of the services and the public administration.</p>
		[2] The webpage has a search tool to discover the services	R70	
		[3] A complete list of services is shown to the citizens	R70	
		[4] Services are grouped according to life events	R70	
ICP06	Does the PA offer any digital means to personalize the list of services shown to the user?	a. Yes		R71: The implementation of a form that can be voluntarily answered by the citizen can aid in the personalization of the catalogue of services that can be displayed to the citizen.
		b. No	R71	

ICP07	Has the PA implemented mechanisms to allow the citizens to provide feedback about their experience in using the PA’s digital services?	a. Yes		R72	R72: Consider including easy to answer questionnaires where citizens can evaluate different aspects of the digital public service following an approach similar to e.g. TripAdvisor, that is a star-based system. Consider including also a commentary text box where citizens can explain positive and negative aspects of the service provided. These comments should also be analysed by means of natural language programming tools such as sentiment analysis to capture the overall feeling (positive, negative, neutral).
		b. No			
ICP08	Is there any mechanism to analyse the comments provided?	a. Yes		R73	R73: Consider integrating natural language programming tools such as sentiment analysis tool to capture the overall feeling (positive, negative, neutral) of a digital public service, that will facilitate the analysis of the comments provided by the users.
		b. No			
ICP09	Does the PA offer an online tracking system that allows the citizens to check the status of their personal transactions?	a. Yes		R74	R74: Implement a dashboard where the citizens can continuously monitor the states of their transaction / application as well as the next steps that they are required to perform.
		b. No			
ICP10	Does the PA offer any push mechanism to remind the user about the services or to send him information?	a. Yes		R75	R75: In order to ensure efficiency in the public service delivery, consider sending reminders for scheduled transactions or those that have a deadline.
		b. No			
ICP11	Which mechanism is used for these reminders?	[1] E-mail	R76	R76: Consider supporting to send reminders through various channels, letting the citizen decide, however, his / her own preferred method or methods.	
		[2] SMS to mobile phones	R76		
		[3] Alerts by email	R76		
		[4] Other [Add text box]	R76		
		[5] Apps	R76		
ICP12	Through which delivery channels is the public service made available to the end user?	[1] Traditional (e.g. in a Counter, Postal or by phone)	R77	R77: The EU eGovernment Action Plan 2016-2020 mentions ‘digital by default’ as one of the key principles for the digital transformation of the public sector. Digital by default means that public services shall be delivered digitally as the preferred option through responsive websites or applications without however, forgetting other channels. The user	
		[2] Digital	R78		

		[3] Both		<p>centricity principle recommends the provisioning of a multi-channel service delivery approach: physical, digital, both, which the citizen shall use depending on their needs and circumstances.</p> <p>During the empirical study carried out in Latvia as part of the CITADEL project (documented in D2.1), it was reported that in-person assistance remains essential.</p> <p>While setting up a public service digital transformation strategy take into consideration the following aspects:</p> <ul style="list-style-type: none"> • Reported convenience of offline services compared to online equivalents • Number of users of offline services where an online alternative is available • Evolution in the number of citizens switching from physical to digital services • Number of citizens exiting digital services to return to non-digital alternatives • Distance to closest offline alternative service in the neighbourhood • Extent of broadband coverage in rural areas • Number of citizens actively using online banking facilities • Number of inhabitants/service beneficiaries without eID card or government portal login credentials • Number of households without internet connection • Presence of guidance on the use of electronic documents and instruments such as e-signatures, e-timestamps and e-authentication methods in the provision of public services • Socio-demographic composition of citizens providing input resembles that of the wider population • Number of citizens participating in service delivery and design • Number of citizens without basic digital skills
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				<ul style="list-style-type: none"> • Number of citizens without basic digital skills, broken down by SES group • Number of citizens without basic digital skills, broken down by level of urbanization of residence • Citizens' self-reported satisfaction with ICT skills • Number of clients/citizens aged 65+ <p>R78: The EU eGovernment Action Plan 2016-2020 mentions 'digital by default' as one of the key principles for the digital transformation of the public sector. As stated in the Tallinn Declaration, the digital by default principle involves the following considerations, which should be applied to the digital services provisioned:</p> <ul style="list-style-type: none"> • User centricity principles, which include: digital interaction, accessibility, security, availability, usability, reduction of the administrative burden, digital delivery of public services, citizen engagement, incentives for digital service use, protection of personal data and privacy, redress and compliant mechanisms. • Foster the reusability of data, with the provision of machine – readable data in open and formal formats. • Improve the digital skills of the population. • Improve the digital accessibility of public services by implementing the Web Accessibility (WAI) directive (see Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2102&from=EN). The EU Directive 2016/2102 states in its recital 9 that 'this directive aims to ensure that the websites and mobile applications of public sector bodies are made more accessible on the basis of common accessibility requirements'.
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				<ul style="list-style-type: none"> • Ensure trustworthiness and security, either with the implementation of eIDAS or authentication mechanisms or by applying the Network and information security (NIS) directive. <p>Some aspects that are recommended to study in the provisioning of digital services:</p> <ul style="list-style-type: none"> • Perceived difficulty of using electronic government services • Citizens' fear of making mistakes on government forms • Citizens' trust in electronic government services • Extent of broadband coverage in rural areas • Number of citizens actively using online banking facilities • Number of inhabitants/service beneficiaries without electronic ID card or government portal login credentials • Number of households without internet connection • Presence of guidance on the use of electronic documents and instruments such as e-signatures, e-timestamps and e-authentication methods in the provision of public services • Number of citizens participating in service delivery and design • Number of citizens without basic digital skills • Number of citizens without basic digital skills, broken down by SES group • Number of citizens without basic digital skills, broken down by level of urbanization of residence • Citizens' self-reported satisfaction with ICT skills • Number of clients/citizens aged 65+
ICP13	In case a digital channel is used for the service, please specify the type.	[1] Dedicated application (functionality that needs be installed	R79	R79: Consider a multi-channel strategy to be able to reach a wider audience.

		on a device by the end user before it can be used. This includes apps from an online application store)		
		[2] Website and/or web portal (functionality that is directly accessible for the end user via an Internet URL)	R79	
ICP14	Indicate, in case both channels (traditional, digital) are in place, which is the most used?	a. Traditional	R80	<p>R80: In order to focus where to put the major efforts consider evaluating:</p> <ul style="list-style-type: none"> • Reported convenience of offline services compared to online equivalents • Number of users of offline services where online alternative is available • Evolution in the number of citizens switching from physical to digital services • Number of citizens exiting digital services to return to non-digital alternatives • Citizens' trust in electronic government services • Perceived difficulty of using electronic government services • Citizens' fear of making mistakes on government forms
		b. Digital	R80	
ICP15	Does the PA offer a unique entry point for all its relevant digital services?	a. Yes		<p>R81: It is recommended to establish a one-stop-shop or single point of contact with the provisioning of several channels (e.g. phone, on-site, customer centres, and so on).</p>
		b. No	R81	

4.3.4 Legal

Table 13. Recommendations for the Legal Dimension

Dimension: Legal			
Topic 1 Awareness and training			
ID	Question	Answer	Recommendation
1.1	Does your organization have a policy on how to handle personal data within the organization (data protection policy/data handling policy)?	<p>A: No, there is no policy</p> <p>B: Yes, there is a policy, but it is vague and unclear and/or not easily accessible to all staff</p> <p>C: Yes, there is a policy; The policy is both clear and accessible</p> <p>D: Yes, there is a policy; The policy is clear and accessible, and people are aware how and when to refer to it</p>	<p>From “compliance issues” to “low compliance”: Make sure to have a written data protection policy detailing guidelines on how to deal with personal data within your organization. Organize GDPR training. Ensure you can have some proof</p> <p>From “low compliance to “medium compliance”: Ensure that your policies are intelligible and accessible. Give regular training, with focus on specific GDPR aspects. Ensure that you can prove what the training entailed and who attended, if necessary.</p>
1.2	In relation to GDPR and processing of personal data, staff ...	<p>A: Have received no training</p> <p>B: Have (partially) received a general (high level) training on GDPR</p> <p>C: Have and will at least yearly receive general GDPR training, with some highlights on specifically relevant issues (HR, direct marketing, ...)</p> <p>D: Have and will regularly receive role-specific GDPR training, taking into account specific challenges and updates</p>	<p>From “medium compliance” to “full compliance”: Make sure that policies are not only easy-to-understand and easily accessible but verify that people know when to consult them and how to use them. Gather proof on this. Give regular GDPR training and updates, specific to different profiles. E.g. HR</p>

1.3	How do you prove GDPR awareness?	<p>A: We cannot.</p> <p>B: We can show the policy and the slides of the general training</p> <p>C: We have a policy, training materials and information on attendance</p> <p>D: We have a policy, training materials, information on who attended and test results proving a certain level of knowledge acquired</p>	<p>people get different training than the marketing team or civil servants who directly interact with the public in public service provisioning. Ensure you can provide proof of these educational efforts, including test results for (essential) personnel, based on their identified needs.</p> <p>Bonus tip: CITADEL has created several privacy literacy exercises. These are a perfect tool for civil servants to test their knowledge and awareness level, while simultaneously learning the GDPR principles through taking the test and reading the explanation provided.</p>
Topic: GDPR governance and DPO			
2.1	As a public administration, your organization is obliged by the GDPR to have the role of a data protection officer (DPO), someone that has the legal knowledge on data protection law and can provide your organization with independent expert advice. Note that a DPO may be an external service provider. Your organization currently has ...	<p>A: Either no person in charge or a person in charge without the title of DPO and who is not really an expert in data protection law and/or clearly lacks independence</p> <p>B: There is a DPO appointed. However, “expert” might be a bit of an overstatement. Independence is not clearly established, e.g. because the person receives instructions from his/her superior with regards to his/her other tasks or does not have a real direct reporting possibility to the highest level of management. Alternatively, if DPO</p>	<p>From “compliance issues” to “low compliance”: Appoint a DPO, create or maintain a governance structure for GDPR and makes sure the DPO is involved where necessary. Additionally, and in a broader sense, make sure that the DPO is involved in the high-profile data protection/privacy related topics.</p>

		<p>services are used: a service provider is used, but no clear guarantees exist on the quality of the firm.</p> <p>C: A DPO has been appointed. The DPO has some proven skills, e.g. has taken a certified and highly recognised course for DPOs. There is no reason to suspect conflict of interest. The DPO can directly report to the highest level of management. However, the DPO often lacks time to fulfil this function and his/her other duties. Alternatively, if DPO services are used: a service provider is used, with some guarantees, such as certificates or relevant experience.</p> <p>D: A DPO has been appointed. The DPO has extensive experience in data protection law. There are measure in place to guarantee independence, including the fact that the DPO can directly report to the highest level of management and has no other functions, thus operating by him/herself. The DPO has sufficient resources available and can handle all the work relatively easily. If DPO services are used: a service provider with a proven track record is employed, which fulfils all other requirements mentioned equally well.</p>	<p>From “low compliance to “medium compliance”: Make sure the DPO is reasonably independent (can report to management, does not receive instructions) and has sufficient knowledge. Have a governance structure which includes the DPO as a standard member with an appropriate role. Make sure the DPO is involved in most of the data protection related issues.</p> <p>From “medium compliance” to “full compliance”: make sure that you have a fully trained DPO who is a true specialist in GDPR compliance and has a thorough understanding of the systems used by the PA and the operational functioning of the PA. Automatically involve the DPO in all matters related to data protection. Make sure all employees know who the DPO is and how and when to contact the DPO.</p>
2.2	When GDPR-related questions arise, an organization should be able to handle these. Information that is GDPR-relevant should travel between the different levels of the organization, so should instructions. Record-keeping responsibilities (see	<p>A: No governance structure.</p> <p>B: A general governance structure, which is also used for GDPR purposes. The DPO is involved when deemed necessary.</p>	

	also topic 3) must be divided. For all these purposes, a governance structure may help create structure and control. Your organization currently has...	<p>C: There is a specific governance structure for GDPR. The DPO is standardly involved and is at the head of the structure or plays an appropriately relevant role. The structure is often used in practice, and this can be demonstrated in a piecemeal manner.</p> <p>D: There is a specific governance structure for GDPR. The DPO is standardly involved and is at the head of the structure or plays an appropriately relevant role. The governance structure is (nearly) always used in practice and this can largely be demonstrated since documentation is kept on this.</p>	
2.3	How much does the staff involve the DPO on data protection related matters?	<p>A: Not at all or very little. The reason for this is that such situations are not often detected as requiring the view of the DPO. Alternatively, there is no DPO or the DPO is not involved for other reasons.</p> <p>B: On the most important and obvious issues, the DPO is involved. However, there have been instances where the DPO quite clearly should have been involved but was not contacted.</p> <p>C: The DPO is consistently involved in data protection related matters. Now and then some small issues are not put up for consultation by the DPO, but it is limited. Moreover, most of the staff is aware that they may contact the DPO for questions relating to their rights as data subjects too.</p>	

		D: The DPO is involved in virtually all data protection related matters. Moreover, the staff also contacts the DPO on data protection questions related to them as a data subject.	
Topic: Record and oversight of processing activities			
3.1	<p>– The GDPR obliges all organizations to keep a record of processing activities (article 30 GDPR). Such a record should at least include:</p> <ul style="list-style-type: none"> - The details of the controller (your organization) and joint controllers, if applicable; - The purposes of the processing (not necessarily the legal grounds); - A description of data subject and categories of personal data; - The categories of recipients (internal and external), including the recipients outside of the EEA; - Where applicable, information on the transfers of personal data outside the 	<p>Your organization currently has.</p> <p>A: No record compliant with article 30 GDPR</p> <p>B: A record compliant with article 30 GDPR, which has been centrally created, but which has not extensively been checked with the staff carrying out the activities described therein in the day to day operations</p> <p>C: A record compliant with article 30 GDPR, which has been created either bottom-up through interviews or similar techniques to elicit information or centrally (top-down), but with extensive checks with the involved staff to ensure accuracy.</p> <p>D: A record compliant with article 30 GDPR, created through a combination of bottom-up information gathering, compilation by a person with legal expertise and checked afterwards with the involved staff</p>	<p>From “compliance issues” to “low compliance”: Keep a record, update it and have other relevant information centrally available.</p> <p>From “low compliance to “medium compliance”: Ensure the record has been verified, that it is updated regularly and that there is a central repository for extra compliance information and compliancy relevant documents. Have guidelines on the use of these documents and the use of the repository.</p> <p>From “medium compliance” to “full compliance”: Ensure that the record really matches reality. Update regularly, not only at set intervals but also when changes in the operation mandate this. Have a central repository which clear role-based access rules and rules on the use of the information. Make sure that</p>

	<p>EEA and the safeguards in place;</p> <ul style="list-style-type: none"> - If possible, a retention period; - If possible, a general description of technical and organizational security measures; 		<p>for all processing activities, clear documentation on choices made is present, not just in a piecemeal manner. Have structure and oversight in the documentation.</p> <p>Bonus tip: many supervisory authorities have models and guidance available to help you organize a record of processing activities and the additional structure that enables you to have a clear oversight of processing activities. As the questions clarify, the record need not reflect all information you have about your processing activities, but this information should be kept internally.</p>
3.2	The record of processing activities is...	<p>A: Not updated</p> <p>B: Updated, but there are no clear rules on when and on who does this</p> <p>C: Updated by the staff identified in a governance structure to be responsible for this at regular intervals, e.g. every 6 months</p> <p>D: Updated by the staff identified to be responsible for this in a governance structure at regular intervals and whenever an event occurs that mandates a review (e.g. changings data processor-service providers); Due to training other staff are able to flag such events to the responsible persons</p>	
3.3	Next to the minimal record obligations on the basis of article 30 GDPR, organizations should keep additional information for themselves to be able to answer	A: No extra information available in a central repository which is meant for internal use only (i.e. not, like a record, to provide to an authority)	

	<p>authorities if there should be an investigation. E.g. the choice of legal ground must not be noted in the record (although it may) but has to be known nonetheless and communicated to the data subject. Your organization currently, next to the record, has...</p>	<p>B: Some central information available, which is meant for internal use only (i.e. not, like a record, to provide to an authority). e.g. on choice of legal ground in some difficult cases, either kept separately or in the record, but without much structure or a clear approach to the use of this information</p> <p>C: A central repository with information which is meant for internal use only (i.e. not, like a record, to provide to an authority) about processing activities, legal grounds, intended retention periods, reasoning on approaches etc. This information could equally be kept in a copy of the record for internal use only. Guidelines exist on how this information should be used.</p> <p>D: A central repository with information which is meant for internal use only (i.e. not, like a record, to provide to an authority) about processing activities, legal grounds, intended retention periods, reasoning on approaches etc. This information could equally be kept in a copy of the record for internal use only. Additionally, there is a clear structure and the information is complete. That means that for each processing activity, all the additional information is available. There are rules on what the information should be used for and access is role- and necessity-based.</p>	
Topic: Communication about processing (data processed, purpose of processing, legal ground)			
4.1	<p>The GDPR requires you to communicate about your processing activities, namely to provide data subjects with the information they</p>	<p>A: No privacy policies or notices.</p> <p>B: A basic privacy policy/information notice on the website and some privacy policies/information notices for specific</p>	<p>From “compliance issues” to “low compliance”: Make sure you have policies/notices for the website (very visible), as well as for all GDPR relevant</p>

	<p>are legally entitled to. This is often done through privacy policies/notices on websites but can also be done through other means. The best means depends on the situation at hand, and a PA will likely need to employ different means for different processing activities. Informing about how a PA carries out general correspondence with citizens will for example be treated differently than the information that should be given when a PA decides to monitor public spaces for the purposes of carrying out smart city/smart government application or project. You currently have:</p>	<p>sensitive projects, but not for all projects or activities. Policies may not always be entirely up to date or are not always reviewed by the DPO.</p> <p>C: A privacy policy on the website as well as privacy policies/information notices for all GDPR relevant projects. The DPO has sometimes reviewed these, for the most sensitive projects.</p> <p>D: A privacy policy/notice for all processing activities that require this. The DPO has been consulted and approved them all.</p>	<p>projects, but certainly specific policies for sensitive projects or projects with potential strong impact. Ensure that policies contain all of the legally required minimum information, and that all purposes of the intended activities are at least covered by a legal base.</p> <p>From “low compliance to “medium compliance”: Ensure that differentiated policies are present for all projects which require this. The DPO should be consulted as much as possible, certainly for sensitive projects. Policies and notices should contain all legally required minimum information, as well as the legally required additional information in those cases which require it. The purposes of the intended processing activities, and the legal basis invoked are detailed more specifically in the policy/notice</p>
4.2	<p>What information do your privacy policies/notices contain?</p>	<p>A: Some, but not all of the following identity of controller, contact details of the DPO, purposes of the processing and legal ground invoked, if legitimate interests is the legal ground: the interests pursued, the recipients of the data (if any), any intended transfers outside the EEA and the safeguards in place there and how to consult these safeguards, the period for which the data is stored or the criteria if not possible, the existence of the right to access, rectification, erasure or restriction, where processing is based on consent the right to withdraw consent at any time without explanation, the right to lodge a complaint with the supervisory authority, whether the provision of</p>	<p>From “medium compliance” to “full compliance”: Ensure that differentiated policies are present for all projects which require this and always involve the DPO. Make sure the privacy policies/notices are truly easy to understand and contain all legally</p>

		<p>personal data is a statutory or contractual requirement (or necessary to enter into a contract) and whether the data subject is obliged to provide this data and the consequences of a failure to do so, and, if relevant, the existence of automated decision-making including profiling and at least in those cases meaningful information about the logic involved as well as the significance and the consequences of such processing for the data subject.</p> <p>B: All of the above in answer A.</p> <p>C: All of the above in answer A. Moreover, the policy is written in plain language and is straightforward to understand and well structured.</p> <p>D: All of the above in answer A. The policy is written in clear language, straightforward and fully adapted to the intended audience. The policy is logically structured and visually easy to read, so that a data subject can easily access specific information. Links are used to easily navigate and/or visual representations, such as icons, charts etc.</p>	<p>required information (basic and extended, depending on the situation) in an easy-to-understand format. Ensure that the different purposes are clearly distinguished and that it is easy to understand which legal ground is invoked exactly for which part of the processing covered by the policy/notice, as well as the consequences that are tied to this choice of legal basis in terms of the potential for the data subject to make certain requests for the exercise of his/her rights.</p>
4.3	How would you rate the description of purpose of processing and legal ground invoked in your privacy communications?	<p>A: The purposes of the processing activities and/or the legal ground invoked are not described in all cases. The policies/notices are very general and therefore often do not catch the full reality.</p> <p>B: Policies/notices describe the purposes of the intended processing activities in a general catch-all manner only, or</p>	

		<p>with a few specifications here and there. Nonetheless, the purpose of all processing activities is covered. The legal ground or grounds invoked for these activities is also described in a general way for the whole or a part of the policy/notice. For those activities based on legitimate interest, the interests are mentioned.</p> <p>C: The processing activities are described clearly, and the specific purposes are outlined. The purposes are linked with the legal ground invoked for that specific activity.</p> <p>D: The processing activities are described clearly, and the specific purposes are outlined. The purposes are linked with the legal ground invoked for that specific activity. Communications clarify and illustrate the consequence of different legal grounds being applicable (e.g. for all processing activities based on consent, consent can be revoked, etc.).</p>	
Topic: Consent in the PA			
5.1	Within the PA, consent as a legal ground is ...	<p>A: The only legal ground the PA relies on/a legal ground the PA never relies on, unless it wants to cover an existing activity which it doesn't have another legal ground for.</p> <p>B: Only ever used when there is no other legal ground.</p> <p>C: Used when this seems to be the best option by the people involved in the activity, if necessary, after consultation with the DPO.</p>	<p>From “compliance issues” to “low compliance”: Consent must not be used in every case, nor is it plausible that consent is never used. Define some approach to the use of consent as a legal ground, at least defining some case where consent is useful as a last measure alternative and some cases where consent is not appropriate.</p>

		D: Used when this has been determined with the DPO to be the most appropriate legal ground. The DPO is always involved.	Gather consent explicitly and with an affirmative action. The consent should be allowed to be withdrawn in principle, without any requirement for the data subject to give reason.
5.2	When consent is used it is obtained...	<p>A: Implicitly, through a pre-ticked box, or through not receiving an opt-out from the citizens</p> <p>B: Through an explicit statement or action of the data subject and is accompanied by the legally required information. However, the information is rather general or complicated.</p> <p>C: Through an explicit statement or action of the data subject, who has been informed about the intended processing in a clear, intuitive and easy to understand manner about the specific purposes for which the data will be used. The policy or notice may also contain processing activities on other legal grounds, but with some effort the reader can find which activities are based on consent and which on other legal grounds</p> <p>D: Through an explicit statement or action of the data subject, who has been informed about the intended processing in a clear, intuitive and easy to understand manner about the specific purposes for which the data will be used and of the right to withdraw consent at any given time. When at the same time gathering information on another legal ground, this is clearly indicated, and the different consequences are easy to assess.</p>	<p>From “low compliance to “medium compliance”: Make sure consent is well understood as a legal ground within the organization, as a result of study, training or experience. Most people involved in the choice of the legal ground must have a good grasp of the concept and its application and involve the DPO when they deem it necessary. Ensure consent is gathered explicitly and with an affirmative action and is accompanied by specific, clear and intelligible information, although it is allowed to do this as part of a larger communication. There must be a procedure for giving effect to withdrawal of consent, in which the DPO is involved where the procedure doesn’t yield the expected results. Satisfactory results are typically achieved for the data subject.</p> <p>From “medium compliance” to “full compliance”: Make sure that consent is</p>

5.3	When consent has been obtained, can it be withdrawn, and, how easy is it to do this?	<p>A: No, withdrawing consent is not possible, unless the data subject has a good reason and can prove this. Withdrawing consent at will would be impractical or impossible, or at the very least costly to implement.</p> <p>B: Yes. The data subject can write the relevant department or the DPO to withdraw consent. Most often the people addressed will know how to handle such requests (e.g. through guidelines within the organization) or involved the DPO if necessary. It may be impractical for the PA to implement this request, e.g. because there is no system in place to handle this, so requests are handled ad hoc, regularly to the result that a request is not (completely honoured), although the remaining processing is minimal and not visible to the data subject.</p> <p>C: Yes. The data subject can do this online in several cases or otherwise can write the relevant department or the DPO to withdraw consent. There is always a procedure or DPO involvement. Handling this request is often easy but can sometimes be complicated to carry out in practice, which leads to some requests being impossible to fully address. Nonetheless, the remaining processing is absolutely minimal and does not affect the data subject.</p> <p>D: Yes. The data subject is always well informed about this and most often can do this easily online. Support is available. Only where legacy systems and other organizational parameters require this, a procedure is followed where the data subject can contact the DPO. This information is provided in an accessible and easy-to-understand format. If the request is sent in another way to</p>	<p>fully understood by relevant staff, nonetheless formally involving the DPO in every case. Ensure that consent is gathered explicitly and through an affirmative action and is always accompanied by clear and intelligible information, which is easily accessible and stands out from the larger context, if any, so that the data subject can easily identify the relevant part and easily access it. Make sure there is an advance procedure to deal with data subject requests for withdrawal and that these are follow-up quickly, effectively and always yield a satisfactory result for the data subject, combining tried and tested procedures in which the DPO is formally involved with ad hoc treatment of exceptional cases.</p>
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		<p>another staff member, the DPO is involved every time. Handling the request is typically easy due to systems being aimed at facilitating this or procedures being established. Ad hoc solving is supported for those instances where a request cannot be handled in this way and always leads to either a full resolution or to a solution which is satisfactory from the point of view of the data subject.</p>	
Topic: Accommodating citizen's rights as data subjects			
6.1	Which situation best describes what happens when a data subject submits a request for exercising one of their rights under the GDPR?	<p>A: Nothing happens. The e-mail gets ignored. There is no procedure.</p> <p>B: There is a basic procedure and a dedicated e-mail address or equivalent point of contact. Requests are dealt with ad hoc and DPO involvement, if any, is also determined ad hoc.</p> <p>C: There is an integrated procedure one the request is received at the contact point. The DPO is either in charge of formally involved in the procedure. There is some guidance on how to deal with requests, also pointing out when requests may validly be denied.</p> <p>D: There is an integrated procedure one the request is received at the contact point. The DPO is either in charge of formally involved in the procedure. There is specific guidance on how to deal with requests, also pointing out when requests may validly be denied, including templates and practical decision trees or equivalent tools. The DPO is involved in all decisions on cases warranting an ad hoc re-evaluation.</p>	<p>From “compliance issues” to “low compliance”: Make sure there is procedure to deal with data subjects requests and an easy-to-reach point of contact. Ensure that most of the requests can be dealt with, if the data subject meets the conditions for the right in question. If you are not able to provide what is requested although you are under the law obliged to, explain the reasoning to the data subject and try to find a solution. Make sure to answer within the legal terms and to not charge unless the law allows this.</p> <p>From “low compliance to “medium compliance”: Ensure the DPO is either in charge or always formally involved and not just ad hoc when difficult situations pop up. Make sure there is</p>

			guidance on how to deal with requests within the organization, covering also the scenarios when it is valid to refuse a request. You should be able to implement nearly every request, if valid. If this proves impossible there is a genuine effort to provide the data subject with an alternative solution and a feedback loop to prevent similar issues in the future. Strive to answer within the minimum term of one month and as far as possible to implement decisions in that timeframe too. Inform clearly and do not charge unless legally allowed, while making this clear to the data subject.
6.2	Are you able to provide all the rights given to data subjects under the GDPR?	<p>A: No, not at all. Nearly every request is a struggle that ends up in an answer which is unsatisfactory for person filing the request.</p> <p>B: No, most but not all. Some of the rights are in practice very hard to implement because of technical and/or organizational measures. We try to explain this to data subjects and find a suitable solution.</p> <p>C: No, most but not all. Some of the rights are in practice very hard to implement because of technical and/or organizational measures. We try to both explain this to data subjects and to provide equivalent or alternative solutions. Moreover, we are actively trying to change the elements that prevent us from fully implementing all data subject rights to the fullest extent.</p> <p>D: Yes, through implementing the necessary adaptations we genuinely believe we are capable to provide all of the possible valid requests a data subject could submit.</p>	From “medium compliance” to “full compliance”: You must ensure that the procedure is fully integrated between all relevant departments and the DPO is either formally in charge or formally involved in every case. Additionally, there is specific guidance on how to deal with requests in a practical and easy-to-access manner, including templates (also for denial of invalid requests) and decision trees or equivalent tools. Valid requests are always able to be granted. Strive for
6.3	How does the timeframe for dealing with a request look like? And do you charge for this?	<p>Depends on the case: weeks, months, ... We answer when we find a solution. Charges depend on difficulty.</p> <p>B: Unless the request is easy, we tell the data subject within the first month upon receipt of the request that we will extend our term to deal with his or her request to three months. We try to motivate this in most cases. This gives us time to consider what to do and to bundle similar requests and answer them in the same way. Costs are only charged if</p>	

		<p>the request is unreasonable, but we decide to go ahead with it anyway. It may very well happen that, if we have granted the request, there is follow-up beyond that term. If we deny the request, we tell the data subject they have measures of recourse.</p> <p>C: We answer within the month, telling the data subject what we have done, i.e. granted the request or denied it because it was invalid. Only when really necessary because of the complexity do we inform the data subject of an extension of the term. In any case we strive to implement the decision to grant a request within that same term. When requests are unreasonable we sometimes offer the data subject the option to agree to a small administrative cost to carry it out anyway, depending on the situation. If we do not get a positive answer, we deny the request, informing the data subject of its rights to appeal that decision and provide additional information on this.</p> <p>D: We answer within the month but strive to answer much sooner. When we answer we tell the data subject what we have done, i.e. granted the request or denied it because it was invalid and the reasons for this. Only when really necessary because of the complexity do we inform the data subject of an extension of the term, aiming to keep it lower than the maximum of three months. In any case we strive to implement the decision to grant a request within that same term. When requests are unreasonable we nonetheless offer the data subject the option to agree to a small administrative cost to carry it out anyway, unless this would be highly disproportional for us. If we do not get a positive answer, we deny the request, informing the data subject of</p>	<p>even greater service in answering and implementing decisions, providing updates and support for the data subject. When dealing with unreasonable requests, let the data subject choose whether to agree to the charges or not, providing clear information and support.</p>
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		its rights to appeal that decision and provide additional information, specific links and support on this. We keep the data subject posted during the course of the assessment and implementation (if the request is granted).	
Topic: Data breach management			
7.1	Do you have a data breach management procedure in place? What does it contain?	<p>A: No, there is no procedure.</p> <p>B: The DPO knows what to do, within what time. It may contain a lot of ad hoc work to gather the necessary information as there are no specific processes.</p> <p>C: Yes, there is a procedure, involving the DPO and other relevant people. The procedure contains guidance and a process to follow, including examples and practical instruments such as decision trees etc. Relevant people know about the procedure.</p> <p>D: Yes, there is a procedure, involving the DPO and other relevant people. The procedure contains guidance and a process to follow, including examples and practical instruments such as decision trees etc. A broad array of relevant people has a knowledge about the procedure, this has been tested. There is a feedback cycle after every incident.</p>	<p>From “compliance issues” to “low compliance”: Ensure that within the organization, relevant people know how to carry out a DPIA. Equally, make sure that relevant profiles know how to implement data protection by design and default, e.g. by giving training or enlisting qualified trainers.</p> <p>From “low compliance to “medium compliance”: Ensure that the DPIA knowledge is surrounded by a framework for the organization which indicates when a DPIA is necessary based on the official guidance available, who to involve (DPO) and what consequences to attach to a DPIA, depending on the outcome. Make sure that the concepts of data protection by design and default are well understood and implemented in practice, building experience within the organization and providing guidance in the form of practical</p>
7.2	How has the organization communicated internally about data breach management?	<p>A: Not at all.</p> <p>B: It has been mentioned in the general GDPR training, but without much guidance and/or not all relevant profiles have been trained.</p> <p>C: In the general GDPR training, a sizeable amount of time has been devoted to data breach management. All relevant personnel have received this training and have been given</p>	

		<p>access to the data breach management procedure, which has been mentioned during the training</p> <p>D: There has been clear communication about the data breach management procedure in the general GDPR training or otherwise, meaning all staff has been informed about it. This is combined with specific training for relevant profiles, who all have knowledge of the procedure and their role in it. This has been tested and can be demonstrated.</p>	<p>examples to be consulted at all times, next to appropriate training.</p> <p>From “medium compliance” to “full compliance”: Make sure DPIA’s are part of a larger procedure detailing when to carry them out, who to involve, who to share the results with, the consequences etc. within the organization. Additionally, verify that the DPIA’s are based on international best practices and are carried out appropriately. Ensure that the concepts of data protection by design and default are always implemented, through providing proper training and a plethora of supporting measures, tips and tricks, at the same time ensuring these concepts are part of all relevant workflows.</p>
7.3	Based on your latest data breach incident, or on a test if none have occurred, how well did the procedure function?	<p>A: No procedure or didn’t manage to observe the terms provided by law to notify incidents that require this (72 hours for notification to the data protection authorities, without undue delay if directly to data subject).</p> <p>B: It worked, but we had a lot of trouble in finding the information, the right people to involve or in making the decision, leading to a notification just within time, with incomplete information.</p> <p>C: It worked, but we had some trouble in finding the information, the right people to involve or in making the decision, leading to a notification just within time, although with (nearly) complete information.</p> <p>D: We managed comfortably to find the needed information, to involve the right people and to make a decision to notify, submitting this one in due time and being assured that (nearly) all relevant information had been gathered.</p>	
Topic: DPIA and data protection by design and default			

8.1	What most accurately describes the use of data protection impact assessments (DPIA) in your organization?	<p>A: We don't exactly know how or when to do a DPIA or how it should alter our processes. We don't really do them or they may be done in a piecemeal fashion, either with or without involvement of the DPO.</p> <p>B: We have a good idea on how to carry out a DPIA and when, but in practice it is sometimes forgotten. There is no clear procedure on when to carry out a DPIA, neither is there guidance on what to do with the results of a DPIA, although we know the theory. Our DPO is formally involved in every DPIA but often does not have time to review it or really give input.</p> <p>C: We know how to do a DPIA and when, this is surrounded by framework guidance for the organisation, indicating when to do a DPIA and what consequences to attach based on the results. The DPO is always involved, gives input and signs off on the DPIA.</p> <p>D: We know how to do a DPIA and when, this is surrounded by framework guidance for the organisation, indicating when to do a DPIA and what consequences to attach based on the results. We carry out a DPIA based on internationally recognized best practices, e.g. making use of standards and/or official guidance provided by data protection authorities and interpretative bodies. The DPO is always involved from the start, so that the need for DPIA, the frequency and the potential consequences are well-mapped and well understood. The DPO gives input and signs off on the DPIA.</p>	<p>From “compliance issues” to “low compliance”: Ensure that within the organization, relevant people know how to carry out a DPIA and the basic consequences. Equally, make sure that relevant profiles know how to implement data protection by design and default, e.g. by giving training or enlisting qualified trainers.</p> <p>From “low compliance” to “medium compliance”: Ensure that the DPIA knowledge is surrounded by a framework for the organization which indicates when a DPIA is necessary based on the official guidance available, who to involve (DPO) and what consequences to attach to a DPIA, depending on the outcome. Make sure that the concepts of data protection by design and default are well understood and implemented in practice, building experience within the organization and providing guidance in the form of practical examples to be consulted at all times, next to appropriate training.</p> <p>From “medium compliance” to “full compliance”: Make sure DPIA's are part of a larger procedure detailing when to carry them out, who to</p>
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8.2	How are the principles of data protection by design and default implemented in your organisation when creating new services or other processing activities or reforming/transforming existing ones?	<p>A_ Not at all or very incompletely because they are poorly understood. We don't do much to address data protection concerns from the beginning of such a process.</p> <p>B: They are implemented in a piecemeal manner, when deemed necessary. Relevant profiles have a vague understanding of the principles. The DPO is pro forma involved in such a situation and may deliver an opinion. Then this is taken into account but often this is not well understood by the people in charge.</p> <p>C: Rather well. There is guidance available on the concepts as well as on when and where to implement these principles in the process. The understanding is based on examples gathered from different sources and experience within the organization. The DPO is always involved in the process, even if only at the start, and people in charge now what to do with the DPO's guidance.</p> <p>D: Very well. All relevant roles know how and when to implement these principles. There is ample guidance present, with concrete procedures, tips and tricks, reporting methods etc. This is based on documented and validated experiences and best practices. The DPO is always involved and ensure the process is carried out correctly. Moreover, the people in charge also have proven knowledge and/or experience in ensuring data protection in their field of expertise.</p>	involve, who to share the results with, the consequences etc. within the organization. Additionally, verify that the DPIA's are based on international best practices and are carried out appropriately, including adding re-assessments where necessary, understanding DPIAs as a continuous process. Ensure that the concepts of data protection by design and default are always implemented, through providing proper training and a plethora of supporting measures, tips and tricks, at the same time ensuring these concepts are part of all relevant workflows.
8.3	What happens after a DPIA has been carried out?	A: We go ahead with the planned processing independently of the result.	

		<p>B: We take the DPIA results into account. If the DPIA shows issues with the processing, we don't go ahead. In any case we don't repeat DPIA's, also when the processing is carried out.</p> <p>C: We take into account the results of the DPIA. If positive, we go through with the planned processing, if negative we don't, unless we are on the edge and go for a prior consultation. In any case we follow-up on the results of such consultation. After that, we keep the DPIA documents for proof and assess whether we might need a check-up in a few years or when major changes are implemented.</p> <p>D: We take into account the results of the DPIA. If positive, we go through with the planned processing, if negative we don't, unless we are on the edge and go for a prior consultation. In any case we follow-up on the results of such consultation. We document and keep the DPIA documents for proof and assess on the basis of the results the necessity for and the frequency of future DPIA's. Unless the first DPIA was actually not necessary, we always do follow-up DPIA updates and do this at a regular interval (e.g. every six months). When big changes are intended, we carry out a full re-assessment.</p>	
Topic: International			
9.1	How certain are you that you have identified all international transfers of data and are dealing with them adequately?	A: We likely have many transfers that are unaccounted for, such as transfer through a processor or small transfers that are not in the record of processing activities. Moreover, even for the accounted transfers, there is unclarity if all have	From "compliance issues" to "low compliance": identify through your record of processing activities (ROPA) created when doing your initial GDPR

		<p>appropriate safeguards or it is even known that they have not.</p> <p>B: We have during our GDPR compliance process asked around for information on transfers, so most likely the most important ones are in the record. We have appropriate safeguards for all those identified or, if a few are missing, are working on it and expect to be in line</p> <p>C: We have made additional effort to identify transfers, also those done by processors and are certain that all these are surrounded by some form of safeguard provided for by the GDPR.</p> <p>D: We continuously try to identify transfers, also those done by processors and are reasonably certain we have identified all of them. All of these are surrounded by best practice safeguards and we feel confident they will stand any scrutiny.</p>	<p>compliance exercise which transfers you have knowledge of. Verify whether all of these are surrounded by appropriate safeguards and if not the case, work on rectifying this.</p> <p>From “low compliance” to “medium compliance”: carry out an additional check to identify all transfers next to your initial and general GDPR compliance exercise. Ensure that for all transfers measures are in place.</p> <p>From “medium compliance” to “full compliance”: make checking for transfers a continuous exercise and implement this in existing procedures and workflows. Make sure there is reporting to the DPO and relevant staff and that for all transfers a safeguard mechanism is in place. If a new transfer is found where such a mechanism is lacking, temporarily suspend the transfer until a solution is found.</p>
9.2	How certain are you that you have identified all international transfers of data and are dealing with them adequately?	<p>A: We likely have many transfers that are unaccounted for, such as transfer through a processor or small transfers that are not in the record of processing activities. Moreover, even for the accounted transfers, there is uncertainty if all have appropriate safeguards or it is even known that they have not.</p> <p>B: We have during our GDPR compliance process asked around for information on transfers, so most likely the most important ones are in the record. We have appropriate safeguards for all those identified or, if a few are missing, are working on it and expect to be in line</p>	

		<p>C: We have made additional effort to identify transfers, also those done by processors and are certain that all these are surrounded by some form of safeguard provide for by the GDPR.</p> <p>D: We continuously try to identify transfers, also those done by processors and are reasonably certain we have identified all of them. All of these are surrounded by best practice safeguards and we feel confident they will stand any scrutiny.</p>	
9.3	How certain are you that you have identified all international transfers of data and are dealing with them adequately?	<p>A: We likely have many transfers that are unaccounted for, such as transfer through a processor or small transfers that are not in the record of processing activities. Moreover, even for the accounted transfers, there is unclarity if all have appropriate safeguards or it is even known that they have not.</p> <p>B: We have during our GDPR compliance process asked around for information on transfers, so most likely the most important ones are in the record. We have appropriate safeguards for all those identified or, if a few are missing, are working on it and expect to be in line</p> <p>C: We have made additional effort to identify transfers, also those done by processors and are certain that all these are surrounded by some form of safeguard provide for by the GDPR.</p> <p>D: We continuously try to identify transfers, also those done by processors and are reasonably certain we have identified</p>	

		all of them. All of these are surrounded by best practice safeguards and we feel confident they will stand any scrutiny.	
Topic: Contracts			
10.1	Article 28 of the GDPR stipulates a list of obligatory items to be contractually regulated when engaging processors and sub-processors and attaches some general conditions as well. Having had a look at these conditions how do you assess your contractual compliance, knowing that as a PA you are most likely the (sole) controller of processing operation?	<p>A: We have many contracts with processors that are non-compliant. Sometimes there is no contract at all, just some e-mails that were exchanged. We aren't certain we have identified all processors, let alone the sub-processors they may use.</p> <p>B: We are nearly certain we have identified all processors. We have a contract with all of them, although the quality of those contracts is divergent and for many it is questionable if they really fulfil article 28 GDPR. We have little oversight or knowledge on sub-processors and several of the contracts contain no mention of the rules for sub-processors, the liability for sub-processor faults or the conditions for engaging sub-processors.</p> <p>C: We have identified all processors and have a contract with all of them. The contracts, while divergent, nearly all have an acceptable wording to fulfil the conditions of article 28 GDPR. Nearly all contracts mention that the same terms (or substantially the same terms) apply to sub-processors and that liability remains with the first processor. Nearly all contracts have rules on engaging sub-processors.</p> <p>D: We have identified all processors and have a contract with all of them. The contracts, although possibly divergent, all fully satisfy the conditions of article 28 GDPR with their wording. There are clear provisions that the same terms (or</p>	<p>From “compliance issues” to “low compliance”: Make sure you have, through your initial GDPR compliance exercise, identified nearly all processors and have some form of contract with them that satisfies prima facie the conditions of article 28 GDPR. Ensure you have made good efforts to identify instances of joint controllership and that you have an arrangement fulfilling the conditions of article 26 GDPR, e.g. by creating a template. Make sure there is a clause in the employment contract or equivalent document referring to the labour rules/standards or equivalent document, with the latter containing at least basic information on data processing and instructions on how staff should process data.</p> <p>From “low compliance to “medium compliance”: Make sure you have identified all processors and that you have a contract with all of them. Try to have contractual terms which are clear and without too much argument</p>

		substantially the same terms) apply to sub-processors and that liability remains with the first processor. All contracts have clear rules on engaging sub-processors.	would hold in court under article 28 GDPR. Ensure you have an overview of sorts on sub-processors and that all or nearly all contracts contain reasonable provision on this. Ensure that nearly all instances of joint controllership have been identified and have the necessary contractual or other arrangements under article 26 GDPR. Provide guidance and/or training on this to the staff and try to create a template agreement to be used or otherwise provide guidance on how to create a joint controller agreement containing the essential provisions (which goes beyond what article 26 GDPR requires, which is very little). Make sure there is a clause in the employment contract or equivalent document referring to the labour rules/standards or equivalent document, with the latter containing information on data processing and instructions on how staff should process data in clear and plain language.
10.2	Article 26 of the GDPR requires that in cases of joint control, the joint controllers have an arrangement between them to divide the responsibilities and obligations, especially in their relationship with the data subject. How do you assess your compliance?	<p>A: We have no idea how to identify a joint control situation and have no idea how to write a joint controller contract.</p> <p>B: We know the theory, but it remains exceedingly hard to identify joint controllership situations. For those we have identified, we have a contract that fulfils the basic conditions of article 26 GDPR, but nothing more.</p> <p>C: We know the theory and have some experience in identifying joint controllership situations. We know official guidance and case law on this point, although application of course remains complicated in many cases. We have a template contract that fulfils the basic conditions of article 26, but also regulates some other important GDPR-relevant obligations, such as security measures/level and communication between parties.</p> <p>D: We are confident we can correctly identify joint controllership situation, knowing both the official guidance and case law on this point as well as several examples from practice. In case of doubt we have access to expert legal advice. We have a template contract that fulfils the basic conditions of article 26, but also regulates all other important GDPR-relevant obligations, such as security measures/level, communication between parties, confidentiality, anonymization techniques and mutual assistance obligations.</p>	<p>From “medium compliance” to “full compliance”: Make sure you have identified all processors and that you</p>

10.3	<p>Staff, whether employees or civil servants, are not considered as separate entities under the GDPR and are therefore not potential controllers or processors in the data processing chain, with the potential exception of self-employed staff, which may be considered as such. For regular staff however, the GDPR nonetheless has an impact on the contractual relation between employer and staff. The GDPR especially requires the employer to both give clear instructions on how staff should process personal information and how they should use the tools they use for processing (e-mail, computers, smartphones etc.) and at the same time the employing organisation must inform the staff about how the organisation generally treats the staff's data, as a part of the organisation's information obligations towards data subjects, in this case the data subjects being the staff. The former information is typically given in the labour rules, which are referenced in the employment contract and to which the staff agrees when signing for the job, while the latter is</p>	<p>A: We have either none of the documents described or are missing important parts.</p> <p>B: We have a clause in our employment contract or equivalent document referring to the labour rules or equivalent document and some basic rules/guidelines on processing. We provide very general information to the staff about how we process their data when they start working with us.</p> <p>C: We have a clause in our employment contract or equivalent document referring to the labour rules or equivalent document, which contain extensive rules/guidelines on processing in clear and plain language. We provide specific information to the staff about how we process their data when signing the contract in plain and clear language.</p> <p>D: We have a clause in our employment contract or equivalent document referring to the labour rules or equivalent document, which contain comprehensive yet precise and intelligible rules/guidelines on processing, in clear language and with illustrations/examples. We provide specific information to the staff about how we process their data before signing the contract. This information is also very easy-to-understand and we explain this before going to contract signing.</p>	<p>have a contract with all of them. Make sure all contractual terms are best practice or near enough that it doesn't matter, ensuring compliance with article 28 GDPR. Ensure you have an overview on sub-processors and that all contracts contain clear rules on this. Ensure that all current instances of joint controllership have been identified and have the necessary contractual or other arrangements under article 26 GDPR and that there is a continuous assessment and guidance for the future. Provide this guidance and/or training broadly to relevant staff and try to create a template agreement to be used or otherwise provide guidance on how to create a joint controller agreement containing all necessary and useful provisions (which goes beyond what article 26 GDPR requires, which is very little). Make sure there is a clause in the employment contract or equivalent document referring to the labour rules/standards or equivalent document, with the latter containing information on data processing and instructions on how staff should process data in clear and plain language, which is easy to be</p>
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	communicated either at the time of signing or before starting the job, either as a part of the labour rules and information or as a stand-alone document. How would you describe the situation at your organisation?		understood. Make sure this information is easily accessible. Where feasible, use alternative techniques to plain text to additionally convey this information (video, training, drawings etc.).
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5 Conclusions

In this document, we have presented the final version of the recommendations and best practices that aim to help policy makers adjust public processes in order to facilitate the cooperation between all CITADEL stakeholders [3], as well as two major pieces of research on which these recommendations and best practices are based.

In the first section of this document, we focussed on the relationship between citizens and the public sector processes. In a multilevel analysis of $n = 104,621$ EU citizens in $n = 173$ EU subnational regions we found that citizens' satisfaction and trust in government is an important indicator of the performance and legitimacy of a political system, and that while both process and outcome of public services have a significant effect on citizen trust, the effect of the quality of processes is larger than that of outcomes. In the second section of the document, we focussed on public officials' attitudes toward the participation of citizens in the public sector processes. We argued that as long as officials' were unwilling to engage with citizens, the empowerment of citizens to transform government processes were likely to remain without consequence [4]–[8]. Through a systematic literature review of 91 (systematically) selected articles we found that officials' hold an instrumental view on citizens' participation in public sector processes and that they assess the pros and cons of each participation process individually. As such, assessments of citizens' competences, of process tailoring, and of the input legitimacy of processes are especially relevant. These findings feed in to the ecosystem recommendations to transform the public processes [KR1], and the requirements of the CITADEL assessment service [KR6] presented in section three of this deliverable.

In the final section of the document, the final version of the digital government maturity assessment model was presented. The objective of the digital government maturity assessment model was to evaluate and assess the digital maturity of a public administration with the aim of improving its digital government processes. Initially, the scope of the digital maturity model was the coverage of digital aspects of the government and delivery of digital public services. However, and after the considerations of the EC reviewers, the scope of the maturity model was increased to incorporate other aspects such as the analysis of the willingness of civil servants to participate and co-create with citizens, social factors of non-use of digital public services, user centricity, smart working, and so on. The end result of the maturity assessment is a maturity level accompanied by set of recommendations that are based on existing reports coming from international institutions (e.g. European Commission, UN, OECD), literature and European regulations, recommendations and initiatives. This maturity model is implemented as an ICT enabler named DIGIMAT in the context of WP4.

6 References

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Appendix 1 – Regions Sampling

First, regions were sampled on NUTS 1 and NUTS 2 level. NUTS 1 aggregates were used for: Belgium, Germany, Greece, Ireland, the Netherlands, Sweden, and the United Kingdom. NUTS 2 aggregates were used for: Austria, Bulgaria, Denmark, Spain, France, Finland, Croatia, Hungary,, Italy, Poland, Romania, and Slovakia. Finally, for a group of countries no NUTS level aggregates are compiled. For these countries, the country aggregates are used as group aggregates. These countries are: Cyprus, Estonia, Lithuania, Luxembourg, Latvia, Malta, and Slovenia.

Second, a number of regions were excluded from the analysis, either because we choose not to include the overseas area's and exclaves in the analysis, or because there is no data on them. We chose not to include Ceuta (ES), Melilla (ES), Balearic Islands (ES), Guadeloupe (FR), Martinique (FR), Guyana (FR), La Reunion (FR), Mayotte (FR), Azores (PT), and Madeira (PT) in the analysis. Furthermore, some regions remained unsampled in the Eurobarometer. These regions were: La Rioja (ES), Åland (FI), Corsica (FR), North Aegean (EL), South Aegean (EL), Ionian Islands (EL), Provincia Autonoma di Bolzano/Bozen (IT), and Provincia Autonoma di Trento (IT).

Third, some Italian regions were merged before sampling: Piemonte and Valle d'Aoste, Abruzzo and Molise, and Puglia and Basilicata. These regions were disaggregated for the descriptive analysis alone.

Fourth, with the adoption of the NUTS 2016 classification, some regional designations and territorial units changed. First, the Hungarian region Közép-Magyarország (HU10) was split in two a regional and a capital region (Budapest (HU11) and Buda (HU10)). Both new regions were assigned their original NUTS 2013 scores (HU10). Second, in Poland the region designation of five regions changed (PL11=PL71, PL33=PL72 & PL82, PL31 = PL81, and PL34 = PL84) and a new capital region was created (PL12=PL91 & PL92). Third, the NUTS 2010 classification was recoded into the NUTS 2016 classification. Fourth, though Lithuania was split in two NUTS 2 regions, we kept the original one NUTS 2 designation. And finally, all France's regions changed name, though no substantive changes were made.

Appendix 2 – European Quality of Government Index (EQI) Questionnaire

The quality of public services

- How would you rate the quality of public education in your area ('1' extremely poor quality – '10' extremely high quality)
- How would you rate the quality of the public health care system in your area ('1' extremely poor quality – '10' extremely high quality)
- How would you rate the quality of the police force in your area ('1' extremely poor quality – '10' extremely high quality)

The impartiality of public services

- Certain people are given special advantages in the public education system in my area ('1' strongly disagree – '10; strongly agree)
- Certain people are given special advantages in the public health care system in my area ('1' strongly disagree – '10; strongly agree)
- The police force gives special advantages to certain people in my area ('1' strongly disagree – '10; strongly agree)
- All citizens are treated equally in the public education system in my area ('1' Agree, '2' Rather agree, '3' Rather disagree, '4' Disagree)
- All citizens are treated equally in the public health system in my area ('1' Agree, '2' Rather agree, '3' Rather disagree, '4' Disagree)
- All citizens are treated equally by the police force in my area ('1' Agree, '2' Rather agree, '3' Rather disagree, '4' Disagree)
- The tax authorities in my area treat all people equally ('1' strongly disagree – '10; strongly agree)

The level of corruption in public services

- Corruption is prevalent in my area's local public school system ('1' strongly disagree – '10; strongly agree)
 - Corruption is prevalent in the public health system in my area ('1' strongly disagree – '10; strongly agree)
 - Corruption is prevalent in the police force in my area ('1' strongly disagree – '10; strongly agree)
 - People in my area must use some form of corruption to just get some basic public services ('1' strongly disagree – '10; strongly agree)
 - Corruption in my area is used to get access to special unfair privileges and wealth ('1' strongly disagree – '10; strongly agree)
 - In the last 12 months, have you or anyone in your family been asked by a public official to give an informal gift or bribe in: (a): Education services? (b): Health or medical services? (c): Police? d) any other public service (Yes = '1', No = '0')
 - In the past 12 months have you or anyone living in your household paid a bribe in any form to: (a): Education services? (b): Health or medical services? (c): Police? d) any other public service (Yes = '1', No = '0')
 - Elections in my area are clean from corruption ('1' strongly disagree – '10; strongly agree)
-

Appendix 3 – Model comparisons

	Deviance	Δ dev to model 5	Δ df. to Model 5	Critical value χ^2 at p.005
Model 5	131,302.6			
Model 2	131,388.4	35.8	2	10.8276
Model 3	131,356.8	54.2	2	10.8276
Model 4	131,315.4	12.8	2	10.8276

Appendix 4 – Systematic Review Search Criteria

Search Query – Web of Science

(WC=("Public Administration" OR "Political Science" OR "Urban Studies") AND TS=("Public Official*" OR "Official*" OR "Manager*" OR "Public servant*" OR "Executive*" OR "Public professional*" OR "City manager*" OR "Bureaucrat*" OR "Public Worker*" OR "Director*" OR "Policy Maker*" OR "decision maker*")) AND TS=("Public participation" OR "Participation" OR "Engagement" OR "Involvement" OR "Inclusion" OR "Deliberative Democracy" OR "Interactive governance" OR "Deliberative Engagement" OR "Responsiveness")) AND LANGUAGE: (English) AND DOCUMENT TYPES: (Article OR Early Access)

Timespan: 1955-2018. Indexes: SCI-EXPANDED, SSCI, A&HCI.

Search Date

30-08-2018

Total N

1984

Web of Science

v.5.30

Search Query – Scopus

First search

SUBJAREA (soci) AND TITLE-ABS ("Public Official" OR "Official" OR "Manager" OR "Public servant" OR "Executive" OR "Public professional" OR "City Manager" OR "Bureaucrat" OR "Bureaucratic" OR "Public Worker" OR "Director" OR "Policy Maker" OR "Decision Maker") AND TITLE-ABS ("Public Participation" OR "Participation" OR "Engagement" OR "Involvement" OR "Inclusion" OR "Deliberative Democracy" OR "Interactive Governance" OR "Deliberative Engagement" OR "Responsiveness")

Second search (interface refined)

SUBJAREA (soci) AND TITLE-ABS ("Public Official" OR "Official" OR "Manager" OR "Public servant" OR "Executive" OR "Public professional" OR "City Manager" OR "Bureaucrat" OR "Bureaucratic" OR "Public Worker" OR "Director" OR "Policy Maker" OR "Decision Maker") AND TITLE-ABS ("Public Participation" OR "Participation" OR "Engagement" OR "Involvement" OR "Inclusion" OR "Deliberative Democracy" OR "Interactive Governance" OR "Deliberative Engagement" OR "Responsiveness") AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-

TO (LANGUAGE , "English")) AND (LIMIT-TO (EXACTSRCTITLE , "Social Science And Medicine") OR LIMIT-TO (EXACTSRCTITLE , "Public Administration Review") OR LIMIT-TO (EXACTSRCTITLE , "World Development") OR LIMIT-TO (EXACTSRCTITLE , "International Journal Of Public Administration") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Public Administration Research And Theory") OR LIMIT-TO (EXACTSRCTITLE , "American Review Of Public Administration") OR LIMIT-TO (EXACTSRCTITLE , "Health And Social Care In The Community") OR LIMIT-TO (EXACTSRCTITLE , "Public Administration And Development") OR LIMIT-TO (EXACTSRCTITLE , "Canadian Public Administration") OR LIMIT-TO (EXACTSRCTITLE , "Children And Youth Services Review") OR LIMIT-TO (EXACTSRCTITLE , "Society And Natural Resources") OR LIMIT-TO (EXACTSRCTITLE , "Government Information Quarterly") OR LIMIT-TO (EXACTSRCTITLE , "International Journal Of Public Sector Management") OR LIMIT-TO (EXACTSRCTITLE , "Annals Of The American Academy Of Political And Social Science") OR LIMIT-TO (EXACTSRCTITLE , "Forest Policy And Economics") OR LIMIT-TO (EXACTSRCTITLE , "Geoforum") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Rural Studies") OR LIMIT-TO (EXACTSRCTITLE , "American Political Science Review") OR LIMIT-TO (EXACTSRCTITLE , "International Review Of Administrative Sciences") OR LIMIT-TO (EXACTSRCTITLE , "Accounting Organizations And Society") OR LIMIT-TO (EXACTSRCTITLE , "Australian Journal Of Public Administration") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Organizational Behavior") OR LIMIT-TO (EXACTSRCTITLE , "Local Government Studies") OR LIMIT-TO (EXACTSRCTITLE , "Science And Public Policy") OR LIMIT-TO (EXACTSRCTITLE , "Local Environment") OR LIMIT-TO (EXACTSRCTITLE , "Social Policy And Administration") OR LIMIT-TO (EXACTSRCTITLE , "Urban Studies") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Southern African Studies") OR LIMIT-TO (EXACTSRCTITLE , "Transforming Government People Process And Policy") OR LIMIT-TO (EXACTSRCTITLE , "Urban Affairs Review") OR LIMIT-TO (EXACTSRCTITLE , "West European Politics") OR LIMIT-TO (EXACTSRCTITLE , "Futures") OR LIMIT-TO (EXACTSRCTITLE , "International Affairs") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of The American Planning Association") OR LIMIT-TO (EXACTSRCTITLE , "Policy Studies Journal") OR LIMIT-TO (EXACTSRCTITLE , "American Journal Of Political Science") OR LIMIT-TO (EXACTSRCTITLE , "China Quarterly") OR LIMIT-TO (EXACTSRCTITLE , "Comparative Political Studies") OR LIMIT-TO (EXACTSRCTITLE , "Governance") OR LIMIT-TO (EXACTSRCTITLE , "Public Money And Management") OR LIMIT-TO (EXACTSRCTITLE , "American Politics Research") OR LIMIT-TO (EXACTSRCTITLE , "Cities") OR LIMIT-TO (EXACTSRCTITLE , "Community Development Journal") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Contemporary China") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Peace Research") OR LIMIT-TO (EXACTSRCTITLE , "Pacific Affairs") OR LIMIT-TO (EXACTSRCTITLE , "American Behavioral Scientist") OR LIMIT-TO (EXACTSRCTITLE , "International Journal Of Urban And Regional Research") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of European Public Policy") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Politics") OR LIMIT-TO (EXACTSRCTITLE , "Political Studies") OR LIMIT-TO (EXACTSRCTITLE , "Review Of Policy Research") OR LIMIT-TO (EXACTSRCTITLE , "Administration And Society") OR LIMIT-TO (EXACTSRCTITLE , "Democratization") OR LIMIT-TO (EXACTSRCTITLE , "International Review Of Public Administration") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Public Affairs") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Service Research") OR LIMIT-TO (EXACTSRCTITLE , "Journal Of Urban Affairs") OR LIMIT-TO (EXACTSRCTITLE , "Public Personnel Management") OR LIMIT-TO (EXACTSRCTITLE , "Voluntas") OR LIMIT-TO (EXACTSRCTITLE , "Educational Administration Quarterly") OR LIMIT-TO (EXACTSRCTITLE , "Environmental Politics") OR LIMIT-TO (EXACTSRCTITLE , "Europe Asia Studies") OR LIMIT-TO (EXACTSRCTITLE , "Habitat International") OR LIMIT-TO (EXACTSRCTITLE , "International Public Management Journal") OR LIMIT-TO (EXACTSRCTITLE , "International Review For The Sociology Of Sport"))

Search date

30-08-2018

Total N

1545